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Consumer Use of Innovativeness: An Empirical Conceptualization

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To the Graduate Council:

I am submitting herewith a dissertation written by Kyungae Park entitled "Consumer Use of Innovativeness: An Empirical Conceptualization." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Human Ecology.

Carl L. Dyer, Major Professor

We have read this dissertation and recommend its acceptance:

James Moran, Jacquelyn DeJong, John Moore

Accepted for the Council:
Dixie L. Thompson

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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We have read this dissertation
and recommend its acceptance:

Jan Holt

Jacky DeJonge

John R. Moore

Accepted for the Council:

Lew Minkel

Associate Vice Chancellor
and Dean of The Graduate School

CONSUMER USE INNOVATIVENESS:

AN EMPIRICAL CONCEPTUALIZATION

A Dissertation

Presented for the

Doctor of Philosophy

Degree

The University of Tennessee, Knoxville

Kyungae Park

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ABSTRACT

The purpose of this study was to empirically conceptualize consumer use innovative behavior. By separating use and purchase in innovative behavior, comparing these two innovative behaviors, and identifying the best predictor variables of use innovative behavior over the adoption and post-adoption processes, this study investigated whether use innovative behavior was a viable concept in consumer behavior.

Based on the theoretical framework of consumer innovative behavior and post-adoption usage behavior, this study tested use innovativeness for the clothing product. College students of the University of Tennessee, Knoxville participated in the questionnaire survey for data collection. Five hundred thirty nine responses were used for data analysis. Major statistics used for this study were factor analysis, multiple regression, path analysis, and discriminant analysis.

The empirical findings showed that: 1) The consumer's perception of product attributes was the major predictor for use innovativeness, while the consumer's financial resources were more important for purchase innovativeness in differentiating the two innovative behaviors in the adoption process; 2) Consumer innovative groups based on purchase and use innovative behaviors were significantly differentiated from one another; 3) Purchase innovative behavior affected use innovative behavior with the interactions of post-adoption variables; and 4) Use innovative behavior affected the diffusion process through personal

influence.

Based on the findings, this study suggests an empirical model for the causes and effects of use innovative behavior on the diffusion process. That is, use innovative behavior was a function of direct and indirect effects of gender, the innovativeness trait, communicated experience, perceived innovation attributes (compatibility), purchase innovative behavior (novelty of purchase), type of product, and usage experience.

The findings indicate that purchase innovative behavior and use innovative behavior are meaningfully separated, and use innovative behavior is a more viable concept in understanding consumer behavior for marketers who are concerned with a long-term relationship with consumers.

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CHAPTER 1

INTRODUCTION

Research Background

Innovativeness has been one of the subjects extensively investigated in major areas of behavioral science, and it has received great attention by consumer researchers. Hirschman (1980, p.283) states:

> Few concepts in the behavioral sciences have as much immediate relevance to consumer behavior as innovativeness. The propensities of consumers to adopt novel products, whether they are ideas, goods or services, can play an important role in the theories of brand loyalty, decision-making, preference and communication. If there were no such characteristics as innovativeness, consumer behavior would consist of a series of routine buying responses to a static set of products.

Notwithstanding its enormous contribution to the consumer research, the conceptual impact of the adoption and diffusion of innovations has been somewhat limited (Black 1982). A major shortcoming of most past research is the limited view where the adoption is the ultimate goal, and with focusing concept on the adoption decision, post-adoption decisions of adopters are neglected (Black 1982).

While adoption is defined as "the decision to make full use of a new idea as the best course of action available (Rogers and Shoemaker 1971, p.25)," most

past studies has only concerned with initial purchase/non-purchase. However, the individual's purchase in terms of the initial acceptance is not the final decision. In the later stage, the individual may continue adoption, discontinue use or even adopt after previous discontinuance. Therefore the correct measurement necessitates adding the dimension of usage as a step of decision-making (Black 1982).

"Level of use" is as important as level of adoption. "High level of use is necessarily a result of high adoption and high continuance, while low level use may result from either low adoption or high discontinuance (Leuthold 1967, citation by Black 1982, p.357)." As high level of use may stimulate the diffusion of the innovation,[1] discontinuance by adopters may slow the diffusion by reducing number of the total adopters, and moreover by exerting a negative impact on later adopters through negative word-of-mouth.

Consumers may find unique use for an innovation, and may use an old product in a new way that marketers were not aware of. "Old products may be given new life by redefining the type and number of uses of a product based on suggestions from consumers (Price and Ridway 1983, p.679)" (e.g., baking soda or cutting off the hem of denim pants to make shorts). This may stimulate the rate of innovation diffusion or may create a secondary diffusion process. Its effect on diffusion especially for symbolic products such as clothing is expected to be more

[1] In consumer marketing, innovation is a new product that implies a new fashion style in clothing.

conspicuous because the use of those products are easily observable, and so easily diffused.

A symbolic innovation results from the reassignment of social meaning to an existing product (Hirschman 1982). Because this innovation (new style) is not radically different from an existing innovation (old style), and most times an innovation depends on consumer's novel perception, it is easier for consumers to create an innovation (Hirschman 1982). Consumers may adopt intangible attributes (new innovation idea) by using old products differently without buying a new product. Further, creative use by consumers may be a source of new innovation for marketers. Therefore, a symbolic innovation like clothing fashion is a continuous process for both the industry and consumers (Sproles 1979, p.100), and innovative use by consumers is an especially important concept to understand consumer behavior toward a symbolic product.

Use Innovative Behavior: The Concept and Theoretical Framework

Use innovativeness was introduced by Hirschman (1980). "The basic idea underlying use innovativeness is that the consumer acts in an innovative fashion when s/he uses a previously adopted product to solve a novel consumption problem (Hirschman 1980, p.288)." Later researchers (Price and Ridgway 1982, 1983, 1984; Ram and Jung 1989) have specified and extended the concept as two levels of product consumption behavior: "the use of a previously adopted

product in a single novel way," and "using of a currently owned product in a wide variety of ways (Price and Ridway 1983, p.679)." It was also defined as adaptive use of an existing product (Kirton 1989) or finding novel ways to use a product (Mudd 1990). That is, use innovativeness is an innovative behavior relative to the product usage process rather than to the product purchase process.

One of major contributions to recent innovativeness research is to conceptualize innovativeness as a personality trait, a willingness to experience something new and to differentiate it from the actual innovative behavior, an adoption of a new product (Hurt, Loucks, Rutherford, and Newlove 1977; Midgley and Dowling 1978; Hirschman 1980; Carlson and Grossbart 1985; Foxall 1989; Kirton 1989; Mudd 1990; Venkatramann and Price 1990; Goldsmith 1990/91). That is, an adoption of a new product (an observable purchasing behavior) is an actualization of an innovativeness trait. Situational factors such as interest in product category, communicated experience, perceived innovation attributes, and other situational factors facilitate or impede the actualization of this trait (Midgley and Dowling 1978). Use innovativeness, using an old product in an innovative fashion to solve a new consumption problem (Hirschman 1980), is another viable actualization resulting from these interactions.

While purchase/adoptive innovative behavior refers to the time aspect in terms of whether or when the individual adopted an innovation, use innovative behavior refers to continued commitment to the innovation. Therefore, use innovative behavior is considered as a post-adoption consumption behavior and

it is expected to be related to post-adoption variables such as use experience and consumer attitude in the usage process as well as related to pre-adoption variables. It is also expected to be related to word-of-mouth which exerts personal influence on the diffusion process.

Research Purposes

The objective of the study is to understand consumer innovative product usage behavior. By separating use innovative behavior from purchase innovative behavior and by comparing these two innovative behaviors, this study investigates whether use innovative behavior is a viable concept in consumer behavior that can be applied to marketing strategy and applied to the clothing product category.

Despite the implicated importance of use innovative behavior in consumer behavior and marketing strategy there is not enough information for it to be conceptualized as an independent theory. Rather, use innovative behavior is based on the theoretical framework of consumer innovative behavior and post-adoption usage behavior. This study follows the well-established purchase innovative behavior[2] framework, and the relevant variables are borrowed from this background. This study further reinvestigates the relationships between the relevant empirical variables and purchase innovative behavior and compares these

[2] Purchase innovative behavior is adoption behavior of a new product. This study specifies "purchase innovative behavior" in order to separate the concept from "use innovative behavior".

relationships with those of use innovative behavior. Such an approach appears to be reasonable in conceptualizing use innovative behavior since the logic is based on the traditional innovativeness framework. This study helps to understand both innovative behaviors as well as use innovative behavior. Further, the study incorporates post-adoption usage behavior to understand the relationship between purchase innovative behavior and use innovative behavior and to identify the predictor variables of use innovative behavior.

More specifically, the research purposes of this study can be phrased as follows:

First: To determine what variables affect use innovative behavior and to examine how these variables affect use innovative behavior;

Second: To examine the relationship between purchase innovative behavior and use innovative behavior and to compare the two innovative behaviors in terms of their relationships with the relevant empirical variables;

Third: To determine whether the two innovative behaviors are significantly separated concepts and what factors distinguish the two behaviors;

Fourth: To examine the relationships of the variables in the post-adoption process to use innovative behavior;

Fifth: To determine/identify the causes and effects of use innovative behavior.

Statement of the Problems

The following research questions are considered:

First: Do the variables that are empirically related to purchase innovative behavior also explain use innovative behavior? In other words, do variables that affect purchase/adoptive innovative behavior also affect use innovative behavior?

Second: Are these two innovative behaviors separated/distinguished from each other? What distinguishes purchase/adoptive behavior and use innovative behavior? In other words, is there difference in the effects of the variables on use innovative behavior and purchase/adoptive behavior?

Third: What influences use innovative behavior after an initial purchase of a new product?

Fourth; What predicts/explains use innovative behavior best?

Fifth: How does use innovative behavior influence the diffusion process?

Significance of the Research

Use innovativeness is expected to be both actualized innovative behavior and product usage behavior. While past innovativeness research has focused on the initial purchase of new product and has relatively ignored the post-adoption usage/consumption process (Robertson 1971; Rogers 1983; Midgley 1977), this study is more interested in innovative product usage behavior after an initial

adoption. While past product usage research has focused on multi-functional durable products, this study is interested in applying the concept to a symbolic product-clothing.

Use innovativeness is important from a number of perspectives. From a theoretical view, referring the adoption process to a single decision point of the first-time purchase of a new product is a limited way to understand consumer innovative behavior (Gatignon and Robertson 1985; Antil 1988; Black 1982; Anderson and Ortinau 1988). Without considering post-adoption usage behavior, understanding of the diffusion process is incomplete and misleading because purchase of a new product and usage of a product provide different conceptual foci (Mascarenhas 1991). Therefore, understanding usage behavior completes the diffusion process since it provides information on how a new product is adopted, used, and finally disposed in the product life cycle.

From a practical view, usage behavior in the post-adoption process refers to continued commitment to the product. It is a result of consumer satisfaction and in turn influences the consumer's decision process such as repurchase of the product, word-of-mouth, attitude formation or change toward brand, store, or company (Antil 1988; Mowen 1990, p.342). Innovative use also can be an alternative to purchase because as consumers evaluate new products they may decide to utilize their owned products instead of buying new ones, and it affects future purchases of new products. Therefore, usage behavior eventually influences the rate of diffusion. Better understanding of use innovativeness may

make marketers control the diffusion process by encouraging and discouraging specific usage behavior. Secondly, creative use initiated by consumers may also be a source of new product idea by marketers that can help product planning strategies. Thirdly, the use of one product may require or suggest the use of other products that retailers also can include in their merchandising strategy (Hawkins 1992).

Therefore, from theoretical perspectives, this study contributes to the conceptualization of consumer innovative behavior. By separating use innovative behavior from purchase innovative behavior and comparing the two behaviors, it can give insight into the whole diffusion process as well as the consumer innovative behavior process. Moreover, this study provides information that should contribute to better understanding of product usage behavior, especially creative usage behavior related to new products and to broader understanding of product usage behavior beyond durable products.

From a practical perspective, this study contributes to efficient marketing strategy because use innovativeness affects repurchase and new product planning. Therefore, extending innovative behavior to include the post-adoption process assists the marketer in developing more effective marketing programs. Such an approach is very appropriate for the marketer who is truly concerned with building a long-term relationship with customers (Antil 1988) as well as building a short-term new product planning program.

Research Scope

This study is especially interested in applying use innovative behavior to the clothing product category. Clothing is often selected for innovation and diffusion research because it is a highly visible product, style change is easily recognized, the change is relatively quick (Forsythe et al. 1991), clothing provides continuous innovations, and the purchase event tends to be memorable to the respondent (Midgley and Dowling 1993).

Clothing has its own characteristics as a symbolic product, and thus it is necessary to redefine use innovativeness for the clothing product. It is an unique characteristic of clothing product that a number of purchases are accumulated as an inventory of available use. A new clothing item, since the first purchase, is usually retained in the consumer's inventory for appropriate use in future consumption situations (Belk 1979, Sproles 1979, p.198). Clothing behavior is a coordination of each available item, that is, a combination of several items such as a shirt, pants, shoes, and/or a jacket for one outfit. Clothing also belongs to continuous innovations. A new style is not radically different from old styles, and various styles co-exist at the same time. Therefore, purchase and usage behavior for clothing should be examined as a general clothing behavior instead examining a single item.

Use innovativeness for clothing can be defined as innovative clothing usage behavior in a novel way and in a variety of ways. How consumers use or wear

clothing in a novel way and in different ways implies such things as trying new co-ordinates (in combining items together), updating old clothes (like cutting off old jeans to make shorts, which has been very popular among young age groups), utilizing existing clothes rather than buying new ones (alternative behavior to purchase), wearing clothes with various co-ordinates for different situations, and wearing various styles of clothes.

Use innovativeness for clothing fashion is actual new usage behaviors which are different from the old ways a consumer has used the clothing under consideration in the past. "The word "New" is the notion that adoption of an innovation requires some perceived deviance in behavior from "old" ways of doing things (Hurt, Joseph, and Cook 1977, p.64)." Therefore, as an innovation depends on the consumer's novel perception (Rogers 1983, p.27; Sproles 1979, p.100) what is a new way and what is a different way in use depends on each consumer's novel perception.

CHAPTER II

THEORETICAL BACKGROUND

Innovative Behavior

Innovativeness-Adoption Relationship: Trait-Behavior

Innovativeness as a personality trait

Rogers and Shoemaker (1971, p.19, p.27) define innovation as "an idea, practice or object perceived as new by an individual" and innovativeness as "the degree to which an individual is relatively earlier in adopting an innovation than other members of his social system." This definition of innovativeness has been so broadly accepted that many researchers have measured innovativeness by the time-of-adoption method, that is, the time when the individual purchased an innovation.

However, the concept and measurement of Rogers have been strongly criticized by later scholars. Hurt et al. (1977) argue that Roger's definition implies that innovativeness is a personality characteristic, and assert that the time-of-adoption focuses on the post-hoc analysis of a specific innovation rather than on the development of predictor models of innovativeness. They argue that strong relationships between innovativeness and other personality characteristics have been demonstrated. Hurt et al. believe that innovativeness is a personality

construct which can be interpreted as a "willingness-to-change," not an actual adoption behavior. Therefore, they believe that innovativeness can be measured by the use of self-report technique and a measure of innovativeness is not innovation specific. That is, they imply global innovativeness across product categories that can be measured by a psychometric scale.

Major argument on the conceptualization of innovativeness starts with Midgley and Dowling (1978). They claim that Rogers' conceptualization is a simplistic trait-behavior model, which measures observable behavior, but is not appropriate to measure a latent personality trait. They assert that innovativeness and relative time of adoption are not synonymous concepts. The former is a hypothetical construct while the latter is a low-level operational variable (Midgley and Dowling 1978).

Midgley and Dowling argue that innovativeness is a personality construct possessed to a greater or lesser degree by all individuals, and distinguish this trait (innate innovativeness) from a behavior (actualized innovativeness). "Innate innovativeness" is an individual personality characteristic, and "actualized innovativeness" is an overt behavior resulting from this higher order trait. Psychological traits (empathy, dogmatism, achievement motivation, intelligence, etc.) and sociological traits (social participation, social integration, cosmopolitanism, etc.) interact with individuals' innate innovativeness. Between individuals' innovativeness and observed adoption behavior lie complex intervening variables, which include interest about product category, communicated experience

and situational effects. Complex intervening variables can cause actualized innovativeness to vary across products and individuals over time (Figure 1). However, Midgley and Dowling (1978, p.237) contend that "the order of presentation of the intervening variables is not meant to imply a causal hierarchy."

Based on their conceptualization, Midgley and Dowling (1978, p.235) define innovativeness as "the degree to which an individual makes innovation decisions independently of the communicated experience of others." They believe that the cross-sectional method is most appropriate to measure innovativeness because they "expect individuals with a high degree of innate innovativeness to display high actualized innovativeness on more occasions than other, less innovative, individuals."

Hirschman (1980, p.283) agrees with Midgley and Dowling's conceptualization as she contends that "innovativeness is the inherent willingness of a consuming population to innovate ..... every consumer is, to some extent, an innovator; all of us over the course of our lives adopt some objects or ideas that are new in our perception." Furthermore she attempts to explain what causes innovativeness or why some consumers exhibit more of it than others. She suggests that variations in consumer perceptions of perceived novelty are linked to the cognitive origins of innovativeness. According to Hirschman, inherent novelty seeking (the desire of the individual to seek out novel stimuli by looking for new and discrepant information and by looking for variety) is conceptually indistinguishable from the willingness to adopt new products (i.e., innate

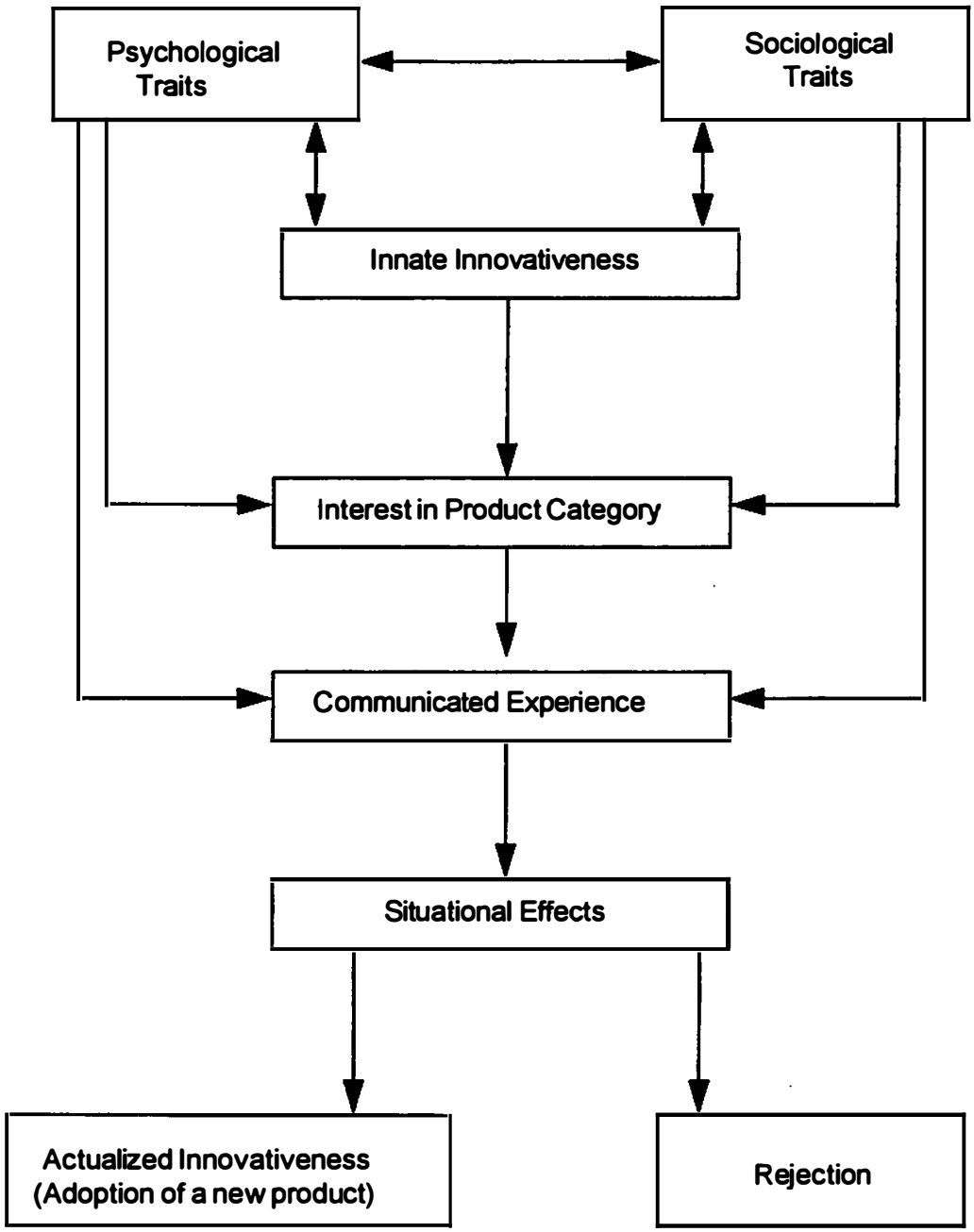

Figure 1. Innovativeness as a Personality Trait
Source: Midgley, D. F. and Dowling, G. R. (1978), Innovativeness: The Concept and Its Measurement, *Journal of Consumer Research*, 4 (March), 229-242.

innovativeness) and thus it can be used in place of innate innovativeness and is posited to lead to actualized novelty seeking, which is the attempt to acquire new information (i.e., information seeking activities). The successful implementation of actualized novelty seeking leads to actualized innovativeness, that is, actualized acquisition of new product.

Hirschman implies a causal link from inherent novelty seeking through actualized innovativeness. Therefore, she contends that adoption (actualized innovativeness) is more closely related to consumer creativity and novel consumption problems than is to innate innovativeness. In addition, Carlson and Grossbart (1985) contend that linking innate innovativeness to inherent novelty seeking is logical since the search for new information may lead to earlier new product adoption.

Most recent researchers (Carlson and Grossbart 1985; Foxall 1989; Kirton 1989; Mudd 1990; Venkatraman and Price 1990; Goldsmith 1990/91; Foxall and Bhate 1991; Venkatraman 1991; Goldsmith and Flynn 1992; Midgley and Dowling 1993) assent to the conceptualization of Midgley and Dowling and Hirschman in viewing innovativeness as a latent underlying preference for new and different experiences and differentiating it from an actual adoption behavior. Table 1 is a summary of the innovativeness-adoption relationship which has been conceptually developed by these researchers. Venkatraman and Price (1990) state that the differentiation of the concept of innovativeness from adoption behavior is one of the significant contributions to innovation research.

Table 1
Innovativeness-Adoption Relationship

Innovativeness	Adoption
General personality trait	Adoption of a new product
Willingness to innovate	Actual innovative behavior
Predisposition to acquire new products	Overt buying behavior of a new product
Across product categories	Within specific consumption domain
Innate innovativeness	Actualized innovativeness
Inherent novelty seeking	
Global innovativeness	Adoption
Cognitive style	
Independent variable	Dependent variable

Kirton (1989) further explains innovativeness in relation to cognitive style. He assumes the individual may be located on a continuum of a personality dimension, from adaptation to innovation, dependent on the characteristic mode in which they solve problems.

Foxall and colleagues (Foxall and Haskins 1986; Foxall 1989; Foxall and Bhate 1991) also understand innovativeness as a cognitive style which influences actualized consumer innovativeness. "Cognitive style is an individual's manner of processing information mentally in decision-making and problem-solving, his or her preferred intellectual mode rather than cognitive level, ability or complexity (Foxall and Bhate 1991, p.185)." They assert that many personality traits and types that explain high innovative cognitive style are also associated with consumer innovativeness (Foxall and Bhate 1991). Foxall further conceptualizes innovativeness as an independent variable and adoption behavior as a dependent variable and he investigates the empirical relation between cognitive style and adoption using Kirton's adaptation-innovation inventory (KAI) measurement.

Goldsmith and Hofaker (1991) state that the time-of-adoption argument of Rogers is based on the assumption that adoption is an indicator of an individual's innovativeness. They believe that Midgley and Dowling (1978)'s cross-sectional method, which determines how many of a prespecified list of new products an individual has purchased at the specific time period, is better measure of the construct "innate innovativeness", because a personality trait accounts in part for some observed innovative behavior through interactions with other personality

traits, situational factors, and the characteristics of the innovation.

After reviewing these earlier conceptualizations, Mudd (1990, p.133) concludes that innovativeness is a continuous variable, and is "a unitary trait, whose origins are to be traced to the interplay of several more basic variables such as risk taking, novelty seeking." He also states its relationship with adoption.

According to the review above, innovativeness and adoption are differentiated as a general personality trait of willingness to innovate and an actual innovative behavior that is exhibited as purchase of a new product. An adoption of new product is a function of interplay of the innovativeness trait and intervening variables. Novelty seeking is the cognitive origin of innovativeness trait and is posited to replace it.

Use innovative behavior as actualized innovativeness

According to Hirschman (1980) adoption behavior is not the only actualized innovativeness. She makes a subtle distinction between components of actualized innovativeness; 1) the actual adoption of a new product (adoptive innovativeness, i.e., the purchase) and 2) the acquisition of new product information (vicarious innovativeness). "Through vicarious innovativeness the individual can, in essence, adopt the product concept without adopting the product itself. S/he can enter novel information into memory and have it available for consumption decision making but avoid the expense and risk inherent in adopting the actual product (Hirschman 1980, p.285)."

Furthermore, Hirschman introduces use innovativeness in relation to consumer creativity, which she views as problem-solving capability in consumer behavior. According to Hirschman, highly creative consumers have a well developed repertoire of consumption problems through which they mentally construct alternatives for a specific new product, and based on utility, decide whether actual purchase is desirable. Therefore, faced with a novel consumption problem, these consumers can undertake one of two courses of action to solve this new problem: they can adopt a new product that is perceived to be better for solving the new problem (adoptive/purchase innovativeness) or they can use a previously adopted product in an innovative fashion to solve the new consumption problem (use innovativeness). Therefore, highly creative consumers do not necessarily adopt/buy a new product but rather engage in more competent new product evaluation. Whether or not creative consumers buy the innovation will still be given appropriate consideration. "The highly creative consumers will be more adept at both types of actualized innovativeness (Hirschman 1980, p.289)." Figure 2 shows a casual link of the innovativeness related constructs.

Price and Ridgway (1983, p.679) specify use innovativeness as two levels of product consumption behavior: "the use of a previously adopted product in a single novel way" and "using of a currently owned product in a wide variety of ways". Their definition implies that use innovativeness is a consumption behavior rather than purchase behavior and implies that it is a post- purchase behavior.

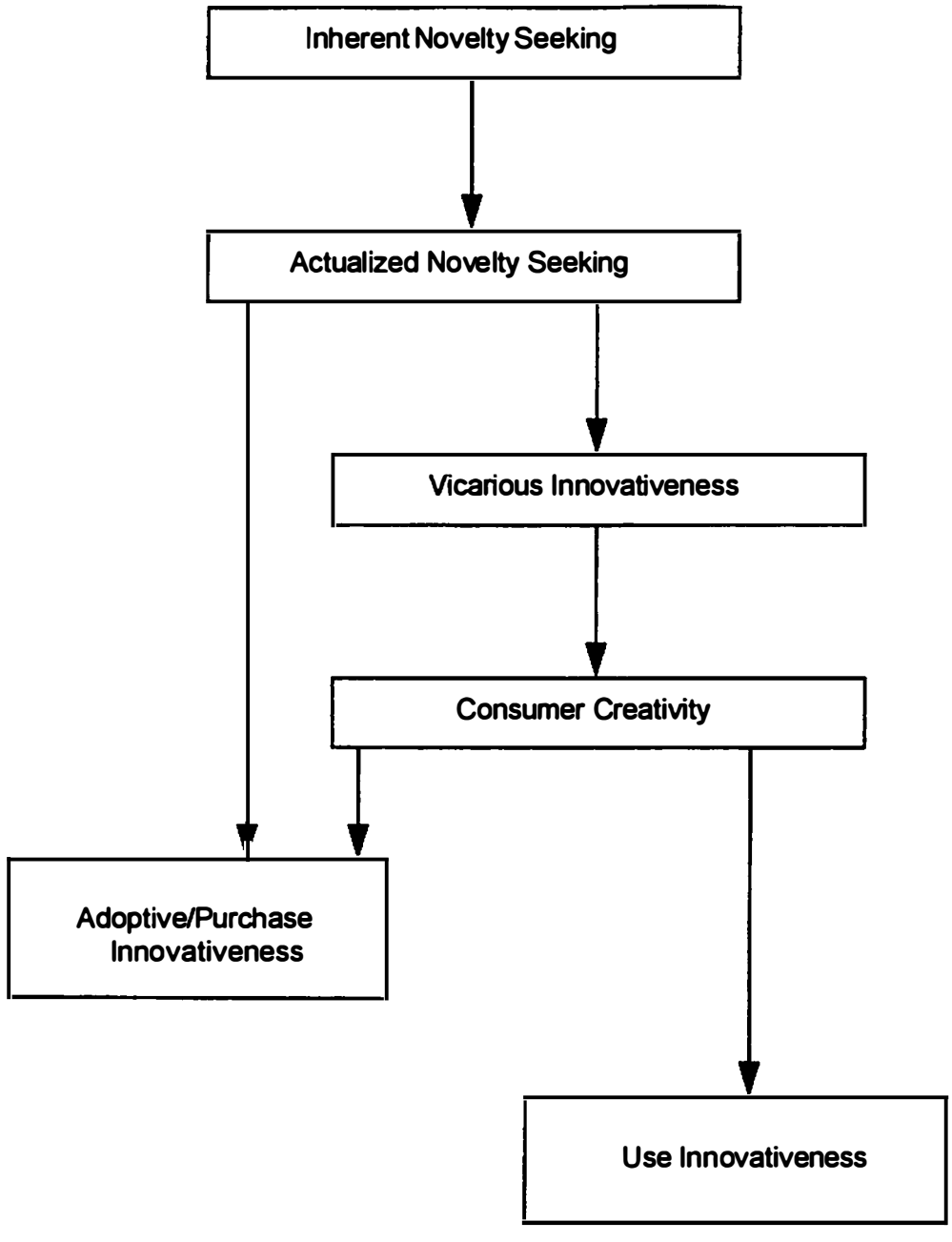

Figure 2. Use Innovativeness as an Actualized Innovativeness
Source: Adapted from Hirschman, E. C. (1980), Innovativeness, Novelty Seeking, and Consumer Creativity, *Journal of Consumer Research*, 7(Dec.) 283-295.

Foxall (1989) contends that actualized innovativeness may be manifest in potentially sequential ways including vicarious innovativeness (learning about new products not yet acquired), adoptive innovativeness (purchase of new products), and use innovativeness (solving novel consumption problems by adaptive use of an existing product).

Foxall and Bhate (1991) contend that use innovativeness is a form of actualized innovativeness, which refers to consumption rather than purchase. They make a conceptual distinction between qualitative and quantitative use innovativeness. Qualitative use innovativeness is "a high degree of discontinuing or dissimilarity compared with current applications," and quantitative use innovativeness is "a measurement of the extent of the more continuous deployment of existing products or techniques over a range of differing uses (Foxall and Bhate 1991, p.188)." This distinction is consistent with the two aspects of use innovativeness: novel use and variety of uses that are specified by Price and Ridgway.

According to the theoretical review above, use innovativeness is another viable type of actualized innovative behavior. That is, innovativeness trait and adoption behavior are differentiated into a general personality trait of willingness to innovate and an actualized innovative behavior. Through interactions with intervening variables, the innovativeness trait is actualized to an overt behavior; adoption or purchase of a new product or new use of a product. When consumers exhibit more of use innovativeness or what makes consumers choose either of

these behaviors has not been explained. However, rich background about purchase innovativeness in relation to some explanatory variables provides ideas that can be applicable to use innovativeness.

Variables Related to Innovative Behavior

Midgley and Dowling (1978) argue that psychological traits (empathy, dogmatism, achievement motivation, intelligence, etc.) and sociological traits (social participation, social integration, cosmopolitanism, etc.) interact with the individual's innate innovativeness. Between an individual's innovativeness and an observed adoption behavior lie complex intervening variables which include interest about product category, communicated experience and situational effects. They argue that situational effects imply a variety of situation-specific and person-specific factors like financial resources, a latent need for the innovation's perceived benefits. Therefore, for a new product, the observed pattern of adoption is a complex function of product interest, individual situations, personal characteristics and a network of information influence as shown in Figure 1.

Summers (1971, p.316) contends that "innovativeness may be a function both of situational variables, such as income and product involvement, and behavioral considerations. It may be that situational factors are unique to specific products and product categories and serve to constrain the individual's innovativeness to particular areas while his behavioral (sociological, psychological,

etc.) make-up influences his basic tendency to innovate."

Venkatraman and Price (1990) interpret that the relationship between innovativeness and adoption behavior is mediated by many situational and product specific factors such as resource constraints and product involvement. Further, Venkatraman (1991) asserts that the translation of desire for new experiences into new product purchase depends on a variety of factors that can be categorized as demographic, personal characteristics like involvement, and perceived characteristics of the innovation like benefits or risk factors. Goldsmith and Hofaker (1991) contend that innate innovativeness accounts for some observed innovative behavior through interactions with other personality, situational factors and the innovation attributes.

A number of research results have been engaged in finding variables to explain and predict consumer innovative behavior. Though this research has somewhat contradicting results, there are significant common findings.

Personal characteristics

According to the summary of empirical research results by Gatignon and Robertson (1985), variables most likely to characterize innovativeness are higher income, higher education, younger age, greater social mobility, favorable attitude toward risk (venturesomeness), greater social participation, and higher opinion leadership. Especially in clothing fashion, innovative (adoption) behavior was empirically correlated to younger age (Mason and Bellenger 1973-4; Reynolds and

Darden 1974; Baumgarten 1975; Painter and Granzin 1976; Hirschman and Adcock 1978; Forsythe et al. 1991), higher education (Painter and Pinegar 1971; Painter and Granzin 1976), higher occupational status (Painter and Pinegar 1971; Baumgarten 1975), higher income (Mason and Bellenger 1973-4; Baumgarten 1975; Forsythe et al. 1991), gender (female rather male) (Goldsmith et al. 1987), race (black rather than white)(Goldsmith et al. 1987), and higher spending on clothes (Baumgarten 1975; Goldsmith and Flynn 1992).

Product interest

Innovators tend to have higher interest in the product category in which they are innovators. Especially, in clothing fashion, innovative behavior was empirically correlated to higher clothing/fashion interest (Grindering 1967; Schrank and Gilmore 1973; Mason and Bellenger 1973-4; Reynolds and Darden 1973, 1974; Goldsmith et al. 1987).

Communicated experience

Innovative behavior is related to the tendency to use information from mass media, especially from related print media, or from outside sources. That is, consumer innovators tend to use print media more often than noninnovators (Robertson 1971; Rogers 1983; Gatignon and Robertson 1985). Especially in clothing fashion, innovative behavior was related to more media use (King 1965; Grindering 1967; Mason and Bellenger 1973-4; Reynolds and Darden 1974;

Painter and Granzin 1976; Goldsmith and Flynn 1992) and higher fashion magazine readership (Painter and Pinegar 1971; Summers 1972; Reynolds and Darden 1973; Baumgarten 1975).

Retail store display is another important information source for clothing (Midgley 1983) because this product is highly observable. Personal sources are important for an individual to decide an adoption (Midgley 1983). According to the survey by Sproles (1979, p.185), most helpful sources of fashion information were newspapers, fashion magazines and retail store display in that order.

Perceived innovation attributes

Rogers (1983, p.216) suggests five innovation attributes as aspects of new product evaluation that have influenced the rate of innovation adoption. Relative advantage is "the degree to which an innovation is perceived as superior to ideas it supersedes." It considers social aspects as well as economic aspects, as Rogers contends that highly visible innovations like clothing, new cars, and hair styles are likely to be status motivated. Especially in clothing fashions, status conferring considerations are a main reason for adoption. He also contends that status motivation for adoption seems to be more important for earlier adopters (Rogers 1983, p.216). Ostlund (1974) expands consideration of relative advantage into time saving, effort saving, and monetary saving.

Compatibility is "the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential

adopters" (Rogers 1983, p.223). Ostlund (1974), in addition, considers compatibility as consistent with self-concept, family members, and existing habits in his study of dessert mix products.

Complexity is the degree to which an innovation is perceived as relatively difficult to understand and use. Triability is the degree to which an innovation may be experienced with on a limited basis. Observability is the degree to which the results of an innovation are visible to others (Rogers 1983, p.223).

Ostlund (1974) uses the sixth attribute, perceived risk which is the degree to which risks are perceived as associated with the innovation. It considers product performance and/or psychological risks. Psychological risk refers to purchaser's concerns about other people's opinions of using the innovation (Holak and Lehmann 1990).

Researchers agree that innovation perceptions are better predictors of adoption than personal characteristic variables (Ostlund 1974; Labay and Kinnear 1981; Holak 1988; Holak and Lehmann 1990). Which innovation attributes are more important depends on product categories and consumer characteristics. For technological innovations, complexity and compatibility tend to rank highest in discrimination of adopters and non-adopters (Labay and Kinnear 1981). Holak and Lehmann (1990) found that compatibility, relative advantage, and perceived risk directly influenced the adoption on technologically intensive consumer durables. Holak (1988) found that compatibility and relative advantage were positively related but compatibility had the dominating impact on purchase intention (adoption)

across the product groups. Therefore, results from past research suggest that compatibility and relative advantage are the most important predictors of innovation adoption (Holak and Lehmann 1990).

Most of conceptualizations and research concerning innovation characteristics have been conducted for technological innovations. However, Hirschman proposes two types of innovation-symbolic innovation which communicates a new social meaning, and technological innovation which provides new tangible features (Hirschman 1982). Research has not been conducted in relation to innovation characteristics and innovation types (Gatignon and Robertson 1985). As Rogers (1983) suggests the importance of the social status aspect especially for highly visible products, social or symbolic aspects should be considered as important innovation attributes.

Therefore, in terms of the interacted effects of the innovativeness trait and the intervening variables on adoption behavior, the relationships between each of these intervening variables and adoptive/purchase innovative behavior have been verified by previous research. Table 2 provides a summary of these research results. Based on these research results and the conceptual proposition which views use innovative behavior as another viable actualized innovative behavior, this study empirically examines whether use innovativeness is an innovative behavior resulting from the interplay of the innate innovativeness trait and the selected intervening variables as purchase innovativeness is and how these variables influence use innovative behavior.

Table 2
Variables related to Innovative Behavior

Variables	Results of Studies
Product interest	Higher interest
Communicated experience	Higher exposure to media Higher readership of print media
Perceived innovation attributes	Higher relative advantage Higher compatibility Lower perceived risk
Demographic characteristics	Younger age Higher education Higher occupational status Higher income Female Higher spending on clothes

Use Innovative Behavior: Research Review

Since introduction of the use innovativeness concept by Hirschman (1980), empirical research has added the aspect of "a variety of uses" for the conceptualization, and later research has tried to explain use innovativeness in a variety of uses aspect. Price and Ridgway (1982) specified use innovativeness as two levels of product consumption behavior: the use of a previously adopted product in a novel way, and the use of a currently owned product in a variety of ways. In the relationships among three actualized innovativeness they found that use innovativeness was not correlated with either of the other exploratory behaviors, exploratory purchase behavior (adoptive/purchase innovativeness) and vicarious exploratory behavior. They conclude that use innovativeness is expected to be a separate phenomenon because "a consumer may purchase a product or instead choose not to purchase-stretching a currently owned product to additional uses.....this decision to buy or not buy represents nearly dichotomous manifestations of high stimulation needs (Price and Ridgway 1982, p.57)." Their conclusion implies that use innovativeness may be an alternative behavior to purchase.

In a later study, Price and Ridgway (1983) defined use innovativeness as variety seeking in product use, a more limited definition than their previous study. They developed a scale to measure use innovativeness toward multi-functional consumer durables (with factors of creativity/curiosity, voluntary simplicity, risk

preference, creative re-use, and multiple use). They investigated innovative post-adoption use behavior regarding hand calculators and found subjects high on the use innovativeness scale exhibited more innovative use patterns.

Using the same approach, Price and Ridgway (1984) investigated use innovativeness of personal computer owners by utilizing their 1983 scale. They viewed use innovativeness as a personality trait by defining it as individual preference for variety seeking within product usage. They found use innovativeness was correlated with usage patterns and specific usage behaviors of personal computers.

Ram and Jung (1989) examined the relative influence of two consumer characteristics (involvement and use innovativeness) on product usage. Defining use innovativeness as a general personality characteristic, they used Price and Ridgway's scale (1982) for five multi-functional consumer durable products. They concluded that use innovativeness was positively correlated with usage frequency and usage variety of durable products, and that product-specific involvement had a higher impact on product usage than use innovativeness.

Anderson and Ortinau (1988) also found that innovators of personal computer tended to be more innovative in PC usage (higher use innovativeness). However, none of these studies describes what can explain use innovativeness or what may cause use innovativeness.

Foxall and Bhate (1991) examined computer use behaviors of adapters and innovators. They hypothesized that use was a function of KAI (measure of

cognitive style), personal involvement and situations. They measured use innovativeness as the increase of the numbers of package-based functions to which the computer put. Even though they did not distinguish between purchase innovativeness and use innovativeness, they demonstrated the value of Midgley and Dowling (1978)'s approach and emphasized the importance of situational factors. They also demonstrated the relationship of KAI (cognitive style) and quantitative use innovativeness (variety of use).

The empirical research studies reviewed above have several common characteristics. Use innovativeness has been studied as a product usage behavior in post-adoption consumption process, and the overall findings conclude that use innovativeness explains usage behaviors. The basic approach of use innovativeness in product usage is an independent personality trait toward variety seeking, and by focusing on the variety of uses, novel uses as an alternative behavior to purchase are neglected. Finally, use innovativeness has been researched for multi-functional consumer durable products in the functional utilitarian perspective.

From past conceptual and empirical research studies for use innovativeness, several common characteristics are derived. Use innovativeness is viewed as a multi-dimensional construct which refers to a novel way of use and a variety of ways of uses. While purchase/adoptive innovativeness focuses on the time perspective in terms of whether and when the consumer adopted the product, use innovativeness focuses on the continued commitment to the product.

Nevertheless empirical support to distinguish these two innovative behaviors is not enough.

Based on these characteristics, this study has questioned whether and how use innovativeness can be separated from purchase innovativeness theoretically and empirically, and for a symbolic product such as clothing fashion, how use innovativeness is applied to the product usage behavior. For these problems, this study attempts to accomplish several tasks. First, this study reinvestigates the relationships between purchase innovative behavior and the variables reviewed in the previous section following past diffusion research tradition. Therefore, it is possible to examine if the findings of this study are consistent with past research tradition (though past research has even conflicting results) and are valid in the innovation and diffusion research framework. Second, it empirically investigates whether use innovativeness is an innovative behavior resulting from the interplay of the innate innovativeness trait (novelty seeking) and the selected intervening variables, as is the case for purchase/adoptive innovative behavior. Moreover, this study examines whether there is any difference in influence of these related variables on the two innovative behaviors. Fourth, clothing fashion is considered in a symbolic consumption perspective. These relationships are exhibited in Figure 3.

There is not enough theoretical background to verify the causal relationships between the intervening variables as shown in Figure 3. Therefore, the causal relationships are analyzed via a post-hoc process. For these tasks, the

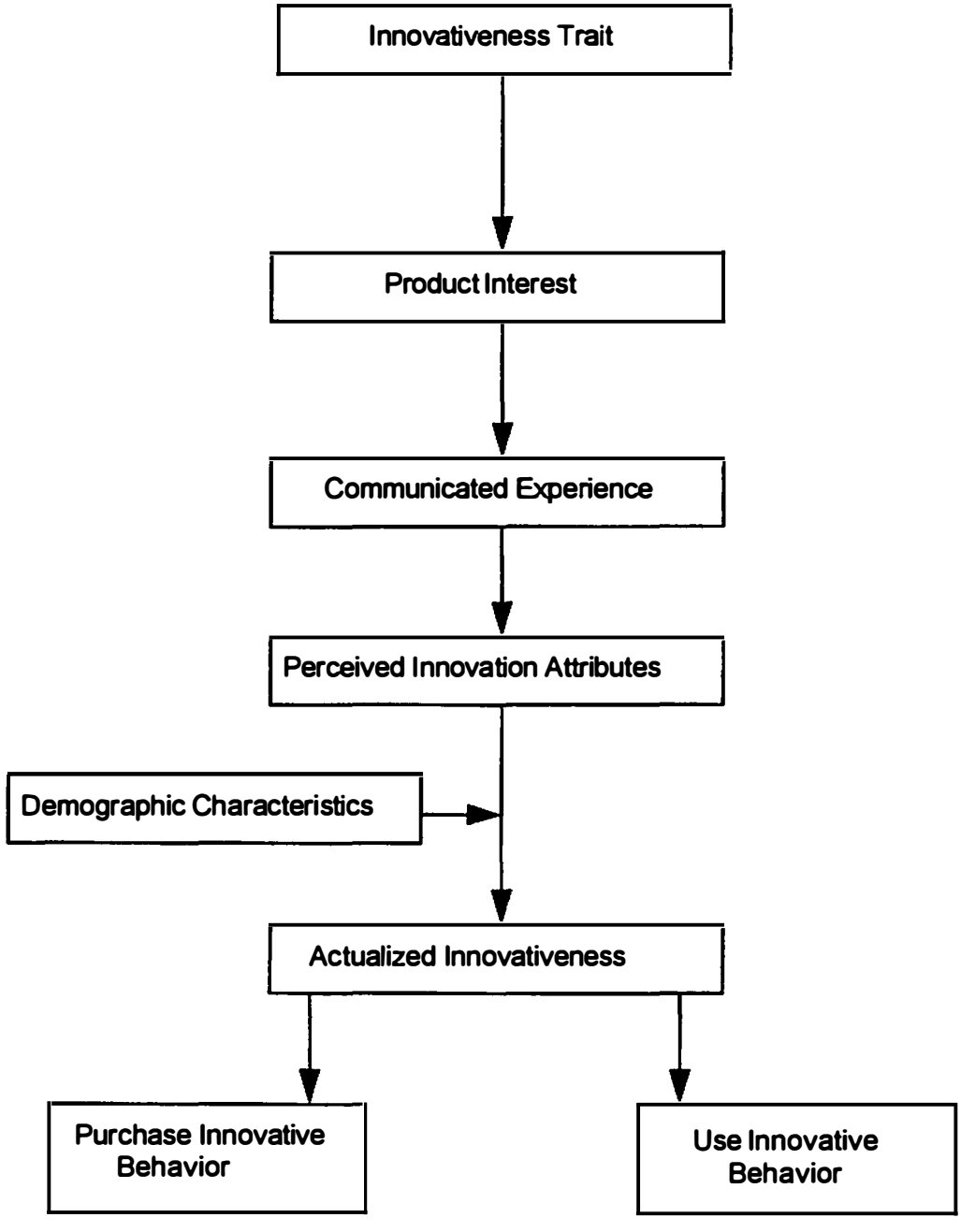

Figure 3. Theoretical Framework I: Model of Innovative Behavior

assumption between the two innovative behaviors should be considered first. Therefore, research studying the relationship between the two behaviors, and post-adoption usage behavior are reviewed in the following sections.

Purchase Innovative Behavior and Use Innovative Behavior

Purchase innovativeness refers to buying a new product and use innovativeness refers to using a product in a new way. Hirschman (1980) is not clear in describing the tentative relationship between the two innovative behaviors, but she mentions that creative consumers may exhibit both innovative behaviors on more occasions. According to the earlier review of the use innovativeness research, Foxall (1989) implies the potential order of purchase innovative behavior and use innovative behavior. Price and Ridgway (1982) separate the two innovative behaviors, and furthermore, Anderson and Ortinau (1988) demonstrate the possible influence of purchase innovativeness on use innovativeness.

The causal relationship between purchase innovative behavior and use innovative behavior is also assumed from the inverse relationship between adoption and discontinuance. Based on past research across several disciplines, Black (1982) and Rogers (1983, p.188) provide propositions about the post-adoption process. These are: 1) "Later adopters are more likely to discontinue innovations than are earlier adopters;" 2) "Earlier adopters tend to discontinue a lower percent of their total adoptions than do later adopters;" 3) "Innovations which

have high rates of adoption exhibit lower rates of discontinuance;" 4) "Discontinuers share the same characteristics as laggards;" 5) "Adopters exhibiting a greater tendency toward continuance exhibit similar characteristics with those of greater innovativeness." (Black 1982, Rogers 1983, p.188)

Discontinuance is a decision to reject an innovation after having previously adopted it (Rogers 1983, p.186). It is a decision to reject an innovation in order to adopt a better idea or to reject it as a result of dissatisfaction with its performance. The relationship between use innovativeness and purchase innovativeness is indirectly assumed from these propositions. As adoption and rejection are alternative behaviors in the purchase process, use and discontinuance are alternative behaviors in the post-purchase process. Therefore, from the inverse relationship between adoption and discontinuance, use innovativeness and purchase innovativeness are assumed to be positively related each other. That is, adoption of a new product may influence innovative use of the product. This assumption is strongly supported by post-adoption process research.

Post-Adoption Product Usage Behavior

The Broadened Concept of Adoption and Post-Adoption Process

Most studies of consumer adoption process use the first-time purchase of a product as the definitional criterion of an adoption. However, many researchers

agree that the concept of adoption has been used in a rather limited way to refer to a single decision-point (Gatignon and Robertson 1985; Antil 1988; Black 1982; Anderson and Ortinau 1988; Mascarenhas 1991). They agree that adoption is the acceptance and continued use of a product (Antil 1988) and it should be considered as a process that each innovation user experiences individually (Hall et al. 1975).

Not all people use an innovation in the same manner. A variety of behaviors may result from a purchase. Consumers vary in the level of usage and may vary in the level of use innovativeness depending on how creative they are in solving novel consumption problems (Hirschman 1980).

Antil (1988, p.8) contends that a first time purchase is not an adoption and that "adoption occurs only when there is a psychological commitment to the product and its attributes. This commitment in turn, leads to an acceptance and continued use and/or purchase of a product. Thus adoption, unlike the single purchase decision, specifically requires continued purchase and/or use over a period of time.....Adoption, then, involves both psychological and behavioral commitment to a product over time." Antil (1988) further suggests that better understanding of the new product adoption process should include direct product experience and product evaluation between the first purchase and adoption as shown in Figure 4.

Antil suggests adding "consequence" as the first stage in the post-adoption process to account for usage of a new product and its effect on the individual.

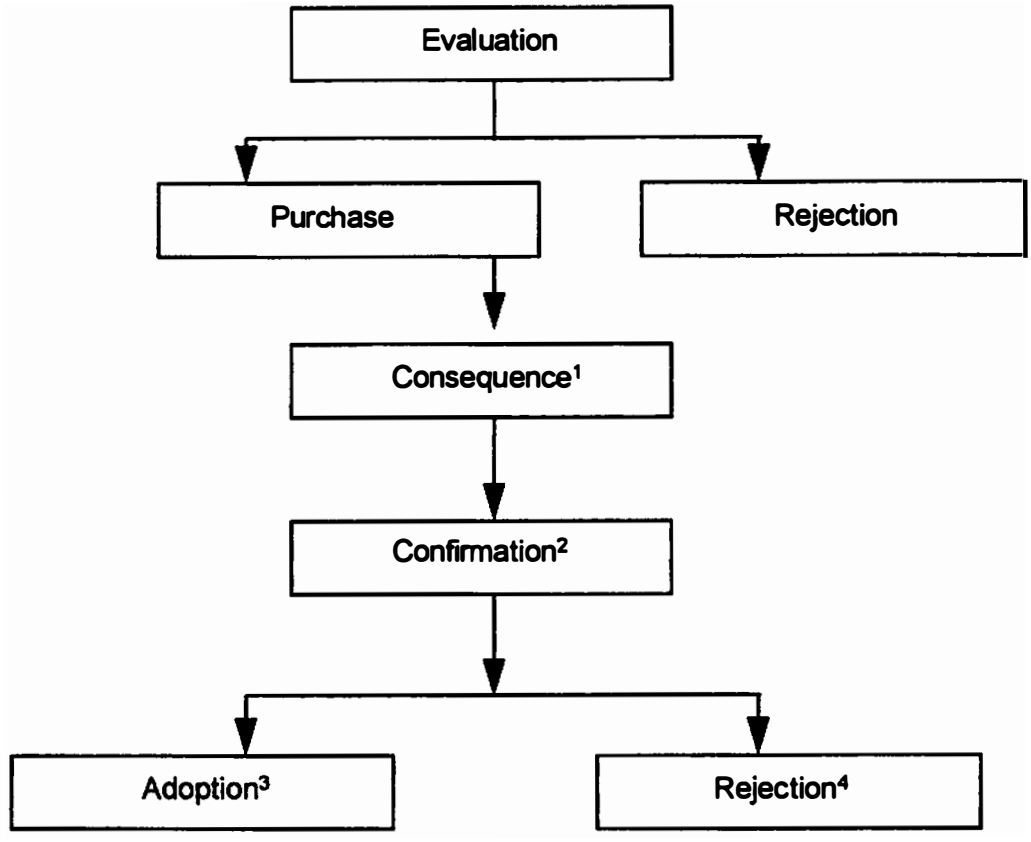

Figure 4. Post-Adoption Usage Process
Source: Antil, J. H. (1988), New Product or Service Adoption: When Does It Happen? *The Journal of Consumer Marketing* 5:2 (Spring), 5-16.
[1] Behavioral commitment of use experience
[2] Psychological commitment related to satisfaction
[3] Continued use
[4] Discontinuance

"Consequences is a behavioral/experience variable that focuses on 1) how the product is implemented or used, and 2) the behavioral and/or life cycle changes that may result from product usage (Antil 1988, p.8)." That is, consequence is experience with a new product purchase. As the second stage Antil adds "confirmation." "On the basis of the consequences of using the product, the consumer forms an evaluation (psychological commitment) that results in some level of product satisfaction.....If actual product performance meets or exceeds prior expectations, confirmation of expectations and satisfaction result (Antil 1988, p.10)." A positive evaluation leads to continued use, whereas a negative evaluation leads to rejection (discontinuance). Continued use based on experience exhibits higher quality of use.

Therefore, post-adoption usage behavior in terms of either continued use in higher quality of use or discontinuance depends on the previous stages including product usage experience (behavioral commitment) and evaluation (psychological commitment). Based on the experience and satisfaction consumers are expected to exhibit use innovative behavior in their continued use stage. This assumption is conceptually supported by the developmental dimensions in innovation use which is discussed in the following section.

Use Innovative Behavior in the Post-Adoption Process

Hall, Loucks, Rutherford, and Newlove (1975) demonstrate a wide variation in the type and degree of use of an innovation. For the individual variation in use of an innovation, Hall et al. (1975) propose eight levels including a lack of awareness of an innovation and an active and effective use and further an active searching for a superseding innovation as shown in Table 3. They hypothesize that "growth in quality of use of an innovation (movement toward higher levels) by most individuals is developmental.....Obviously, these advanced levels of use are attained merely by use of the innovation through several cycles (Hall et al. 1975, p.52)." Experience is essential for an individual to develop high-quality use for an innovation.

According to Hall et al.'s dimensions, an individual uses an innovation in a variety of ways (usage variety) at a high level (Level 6) and it is supposed to result from experience relative to the innovation, and may be expected from earlier adopters who have used the innovation for a longer time of period. Further, the individual integrates use at a higher level (Level 7) and seeks modifications and alternatives at the highest level (Level 8). Renewal is consistent with the concept of use innovativeness since those behaviors require some problem-solving abilities resulting from experience. Therefore, use innovativeness is expected in the highly developmental stages of uses (Level 6 to 8), and it is expected to be developed from a routine use to a variety of uses and further to an adaptive new use.

Table 3
Level of Use Dimensions

Level 1	Non-use	State in which the user has little or no knowledge of the innovation, no involvement with the innovation
Level 2	Orientation	State in which the user has acquired information about the innovation, and is exploring its value orientation
Level 3	Preparation	State in which the user is preparing for the first use
Level 4	Mechanical Use	State in which the user focuses most effort on the day-to-day use of the innovation with little time for reflection
Level 5	Routine	State in which the use of the innovation is stabilized, there is little variation in pattern of use over time
Level 6	Refinement	State in which the user varies the use of the innovation, explores and experiments with alternative combinations of the innovation with existing uses
Level 7	Integration	State in which the user is combining own efforts to use the innovation with related activities, and changes in use are made in coordination with others
Level 8	Renewal	State in which the user re-evaluates the quality of use of the innovation, seeks major modifications of alternatives, and explores other innovations

Source: Hall, G. E., Loucks, S. F., Rutherford, W. L., and Newlove, B. W.(1975), Levels of Use of the Innovation: A Framework for Analyzing Innovation Adoption, *Journal of Teacher Education* 26:1, 52-56.

Therefore, Hall et al.'s developmental dimensions conceptually support the Antil (1988)'s post-adoption process model. That is, usage experience after an initial adoption is expected to influence innovative usage behavior. Consumers have accumulated knowledge about the product as they have used it more frequently, and their experiences tend to result in a higher ability of adaptation of the innovation in a variety of ways and a novel way. Until they decide to discontinue using the product, they may experience several stages of use (Hall et al. 1975; Jacoby, Berning and Dietvorst 1977).

Therefore, the Antil's post-adoption process model can be adapted like Figure 5. There is partial empirical support for this post-adoption process model, even though no research has covered the whole process for the model. Price and Ridgway (1983, 1984) and Ram and Jung (1989) provide the empirical relationships between use innovativeness and usage behaviors including usage patterns, use frequency and use variety.

According to Gatignon and Robertson (1985), innovators are found among heavy users. Wellan and Ehrenberg (1988) found that for consumer non-durable products such as snack foods or personal care products, early adoption was related to higher product commitment.

Anderson and Ortinau (1988) provide partial empirical support for the Antil's model by demonstrating the relationships of early adoption and post-adoption variables such as satisfaction, usage patterns, and product integration. They investigated whether differences did exist between innovators and later adopters

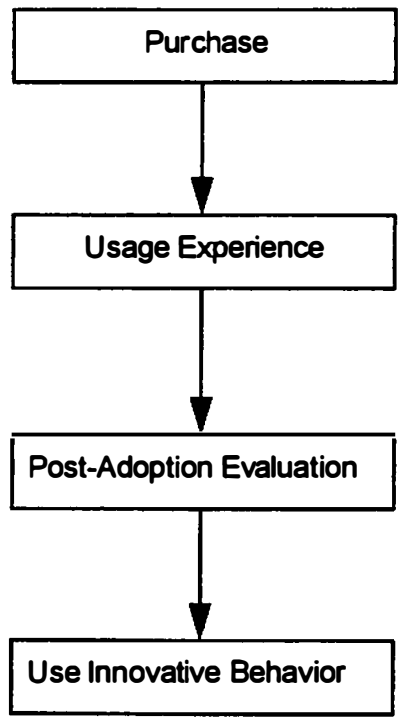

Figure 5. Theoretical Framework II: Model of Use Innovative Behavior in the Post-Adoption Process

of personal computer with respect to post-adoption behavioral factors such as usage patterns, satisfaction patterns, and product integration. According to their results, innovators were more curious about how the product work and were more willing to develop additional uses for the PC. Innovators used the PC more frequently, purchased additional items of hardware and software, were more satisfied with their purchase, owned more electronic products, and exerted more positive influence to friends in buying one.

However, in analyzing the post-innovation adoption behavior for a capital good innovation, Mascarenhas (1991) found no relationship between the time of the innovation adoption and its discontinuance and retention. He concluded that early-adopters were not necessarily more committed to innovation than late-adopters. However, innovation non-adopters, discontinuers, and retainers exhibited differences with respect to size, age, and multinationality of organization. Innovation discontinuers were more similar in overall profile to non-adopters than to retainers in terms of small size, less multinationality and older organization characteristics.

According to the empirical research review above, purchase innovative behavior has been related to the post-adoption variables such as amount of use, use frequency, product commitment, satisfaction, product integration, and related item purchase. These variables were also related to use innovative behavior. However, these research results and propositions have somewhat conflicting conclusions, and no empirical attempts to directly examine the two innovative

behaviors have been tried.

Considering the major motivation toward a symbolic product like clothing fashion as variety and newness, and considering obsolescence as a major factor of changing fashion life cycle, the relationships between purchase, usage/discontinuance and use innovativeness may exhibit a direction different from those of durable-products. Chun and Davis (1988) examined differences between fashion innovators and non-innovators in clothing disposal practices. Innovators were more likely to wear clothing for a shorter period of time and to dispose clothing due to fashionability and conformity reasons. Characteristics of clothing should be considered to observe how these assumptions mentioned above can be applied to this product category.

Consumers may exhibit use innovative behavior by a variety of uses. Further, an unique/new way of use developed from original uses may influence future adoption behavior. Past usage experience has been considered as an important influence on future purchases (Bettman and Park 1980; Johnson and Russo 1984). Boyd and Levy (1963) argue that product usage within a consumption system plays a key role in shaping buying behavior. Clearly what consumers do with products and how they use them influence their future purchasing decisions.

Therefore, use innovative behavior which is a higher experienced behavior in post-adoption consumption process is expected to influence future adoption behavior. When creative consumers are faced with a new product they may not

always adopt it, but they are more competent to evaluate the new product (Hirschman 1980). They may decide to utilize an old product in a new way instead of buying a new one.

Product Usage Behavior: Dimensions of Usage Experience

Usage experience as a product usage behavior is one of poorly developed research areas, while evaluation relative to consumer satisfaction has been broadly researched. Usage experience can be explained and measured by several dimensions.

In analyzing usage and consumption experience in terms of how consumers use their products, Hawkins et al. (1992) suggest four factors to be considered: consumption frequency, consumption amount, consumption interval, and consumption purpose. Zaichkowsky (1985) suggests that product use would be defined as two variables representing breadth and depth of consumption experience. The frequency of usage (how often the product is consumed) represents depth of consumption. For durables, number of times in the specific time period the product was used, and for non-durables, number of occasions in the time period the product was purchased. The breadth of consumption implies a variety of use situations for durables, and the number of brands the person has consumed or purchased over a given time period for non-durables.

Ram and Jung (1990) investigated the key conceptual dimensions of product usage that could be generalized across several products and developed measures of product usage adopting two methods: self-report questionnaire and diaries. The results suggested that usage frequency and usage variety were two critical dimensions of product usage, and usage variety derived from the product features as well as the usage situations. They also suggested that a systematically designed self-report could provide reliable, valid measures of usage, and could also save the considerable effort needed to obtain diary measures. They contend that conceptualization of the usage experience dimensions tends to be product-specific and they suggest that in the context of consumer durables, which offer multiple features, "usage frequency refers to how often the product is used regardless of the different applications for which the product is used. Usage variety refers to different applications for which a product is used and different situations in which a product is used regardless of how frequently it is used (Ram and Jung 1990, p.68)."

In a study investigating use innovativeness and technology integration for the personal computer, Price and Ridgway (1984) investigated current use behavior as one of integration measures. Current use behavior was measured by: 1) reported current use behavior: frequency of use, recency of last usage, duration of use on each usage occasion, number of types of uses and number of new applications or uses that the individual has created for the computer, and 2) usage pattern.

Dutton et al. (1985) identified two dimensions in the context of personal computers: amount of usage (regular/irregular vs light/heavy) and variety in usage (low vs high). Foxall and Bhate (1991) used multi-act criteria of time-based measure of use, which included frequency of computer use, number of years of computing experience, extent of software package used, and programming experience.

Several researchers examined the effects of consumer psychological traits on product usage behavior. Bloch (1981) investigated how usage frequency was affected by involvement in an automobile product. Relationships between involvement and usage-related behaviors such as seeking product usage information, performing repairs and maintenance were investigated. Zaichkowsky (1985) tested the relationships among product use (measured by frequency), involvement and expertise. Involvement was highly related with higher use and self-report expertise.

Based on the review above, dimensions of usage experience which might affect use innovative behavior consist of both variety and frequency. These dimensions are also applied to new products as Gatignon and Robertson (1985, p.854) contend: "The concept of adoption has been used in a rather limited way to refer to a single decision. Yet, for consumer product diffusion, adoption should be conceptualized more multidimensionally. It is important to assess adoption as to both width and depth. By width, we mean the number of people within the adoption unit who use the product, or the number of different uses for the product,

while depth indicates the amount of usage or the purchase of related products. Diffusion research should reorient beyond single adoption decisions to an examination of adoption width and depth."

Variables Related to Use Innovative Behavior

Usage experience and the resulting attitude about the product in the post-adoption process tend to be major influences on high quality of continued use or discontinuance (Antil 1988). Black (1982) suggests assessing the impact of these factors as additional influences in defining the tendency to use or discontinue instead of defining it as a separate trait. According to Black (1982, p.359), "the decisions of the post-adoption process involve not only those variables that affected the initial adoption decision, but also the factors of experience and subsequent communication of information" as seen in Figure 6. These additional factors act as influences on subsequent decisions and influence the change of previous perceptions or beliefs.

Black (1982) contends that the initial set of factors affecting the adoption decision include personal characteristics, social system variables, perceived innovation attributes, communicated experience of others and situational considerations. These initial characteristics which facilitate adoption also positively influence continued use, which can be developed by usage experience.

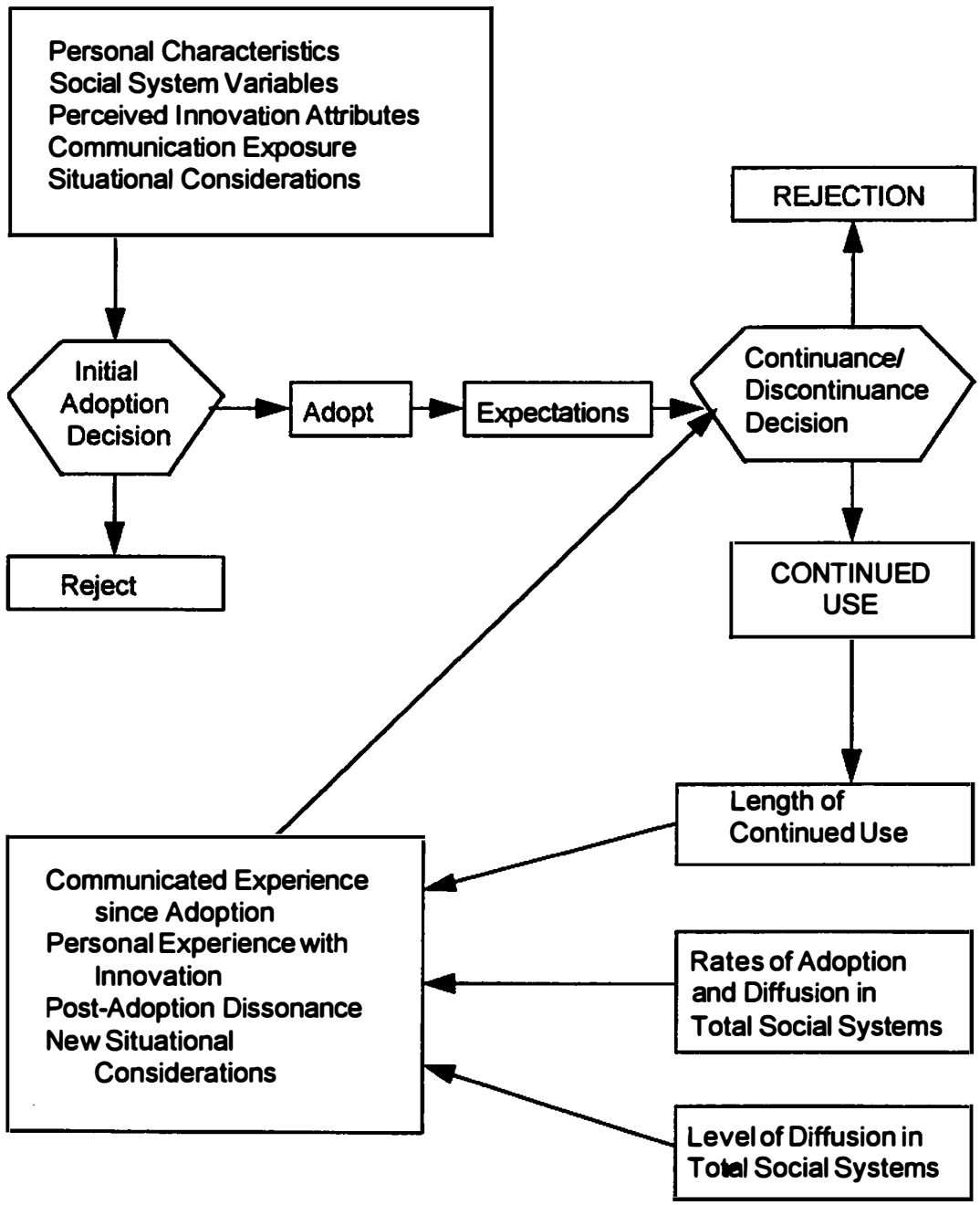

Figure 6. A Conceptual Model of the Post Adoption Process
Source: Black, W. (1982), Discontinuance and Diffusion: Examination of the Post Adoption Decision Process. in *Advances in Consumer Research*, 9, 356-361.

Additional sets of variables which are changes that have occurred since the adoption decision include personal changes such as communication experience, personal experience, and post-adoption dissonance, exogenous events like new situational considerations, and the second set of factors such as the level of diffusion, the length of continued use, and current rates of adoption and diffusion (Black 1982). That is, based on the earlier continued use which provides accumulated usage experience a consumer achieves advanced levels of usage stage that lead to use innovativeness.

Therefore, use innovative behavior of a specific innovation is expected to be directly influenced by usage experience and post-adoption evaluation about the new product and also continuously influenced by the previous variables which affected on the initial adoption decision. To understand use innovative behavior, a series of variables from the innovativeness trait to post-adoption evaluation should be considered.

The Effect of Use Innovative Behavior

The diffusion process deeply depends on the communication of information among potential adopters. Marketers provide the information related to the new product through persuasive messages in order to induce consumer awareness and promote an adoption. However, consumers often acquire information of a new product from other consumers, especially family, friends, neighbors or peers and

are more influenced by the advice from them than by mass media.

Interpersonal information sources are persuasive in that they provide the reference of group norms (Reynolds and Darden 1972). Especially in product categories of high social risk and visibility, consumers are more dependent on personal information sources (Midgley 1983). Therefore, interpersonal communication among consumers is an important factor in determining the speed and shape of the diffusion process.

Early adopters tend to disperse their experience and evaluation about the innovation they have purchased and/or used. According to their attitudes resulting from the evaluation and satisfaction based on usage experience, they may disperse positive information or negative information. Negative word-of-mouth by unsatisfied innovation users will affect negative interpersonal influence on later potential adopters and further on diffusion process.

While innovative use experience may have a positive impact on subsequent adopters, discontinuance by adopters may have a negative impact. "The influence of discontinuers may be greater than the influence of continuers (Leuthold 1967, p.105, citation by Black 1982)." Therefore, it is critical to investigate whether adopters exert different interpersonal influence according to their different usage levels. Purchase innovative behavior and interpersonal influence have been empirically correlated especially in clothing fashion (Reynolds and Darden 1974; Hirschman and Adcock 1978; Kim and Schrank 1982)

Analyzing how consumers use their innovations should be product-specific, as Ram and Jung (1990) contend. Product usage research in the post-purchase aspect has focused on durable products such as the VCR, microwave, or personal computer which have multiple functions and can be observed for a variety of uses.

How can product usage behaviors, especially innovative use, be applied to symbolic products? Usage for symbolic products is beyond functional aspects. Consumers give different meanings to these products based on their socio-psychological preferences and interpretations.

Ram and Jung (1990) explain three perspectives relative to how consumers use products: social interaction perspective, experiential perspective, and functional utilitarian perspective. However, these perspectives should not be mutually exclusive. Most products like clothing, automobiles or houses have both functional and symbolic meanings. Whether a product belongs to a symbolic product or a functional product may depend on each consumer's perception. The same product can be functional to a consumer to whom the utilitarian aspect is more important, and be symbolic to a consumer to whom the social aspect is more important.

Hirschman (1982) argues that product innovations may arise from both; symbolism (intangible attributes) and technology (tangible attributes). For products which are high in social symbolism but low in technology, such as apparel, hair

styles or jewelry, innovations result from the reassignment of social meaning to an existing product. That is, "its physical form remains predominantly unchanged but the meaning assigned to that form is novel.....It may have been physically present in society for an extensive period of time, yet be considered an innovation at a specific time, generating a secondary diffusion (Hirschman 1982, p.537)."

Clothing fashion is a product category where taste and discrimination of relative beauty depend on perceptions rather than do objective criteria (Petrosky 1991). In the absence of objective standards for judging a product, group pressure can be an important influence on an individual's choice (Venkatraman 1966). Individuals can compare their behaviors with that of a reference group by interaction and/or the more passive observation of others (Midgley 1983). Reference group pressure has been broadly researched in clothing behavior.

Evans (1964), in study of motivational forces determining the wearing and purchasing of clothing, indicates that "recognition from others," and "approval by friends" are the most intense desires determining the clothing selection. Gurel et al. (1972) indicates the relationship between a tendency to conform to peer group's norms and clothing choices.

Hirschman (1982, p.537-8) also contends that "symbolic innovations will diffuse primarily due to their association with a given reference group.....The consumption of symbolic innovations may be viewed within a sociological context as representing the individual's attempt to assimilate roles and to communicate reference group identification to others." Because innovations require no novel

technological attributes, they are perhaps easier to create. Therefore, symbolic innovations may arise from consumers and advertisers as well as marketers. "In many cases consumers have been the source of creativity in reassigning social meaning to objects and providing them with innovation status (Hirschman 1982, p.540)."

Therefore, social meaning attached to the consumption of intangible product attributes and adoption of that social meaning may be the major characteristics of clothing behavior. This social meaning should be incorporated when the consumer's perception of innovation attributes is considered and it may be a more important aspect than functional aspects.

Conceptual Model of Consumer Use Innovative Behavior

Based on the review of literature, this study proposes a conceptual model for use innovative behavior. This model for the causes and effects of consumer use innovative behavior contains the process of consumer innovative behavior, from an innovativeness trait to purchase/adoption of an innovation, and to use of the innovation as seen in Figure 7.

Innovativeness is a general personality trait possessed more or less by every consumer, and it interacts with personal characteristics (psychological traits, sociological traits, and demographic characteristics). Through interactions with some intervening variables such as interest about product category, communicated

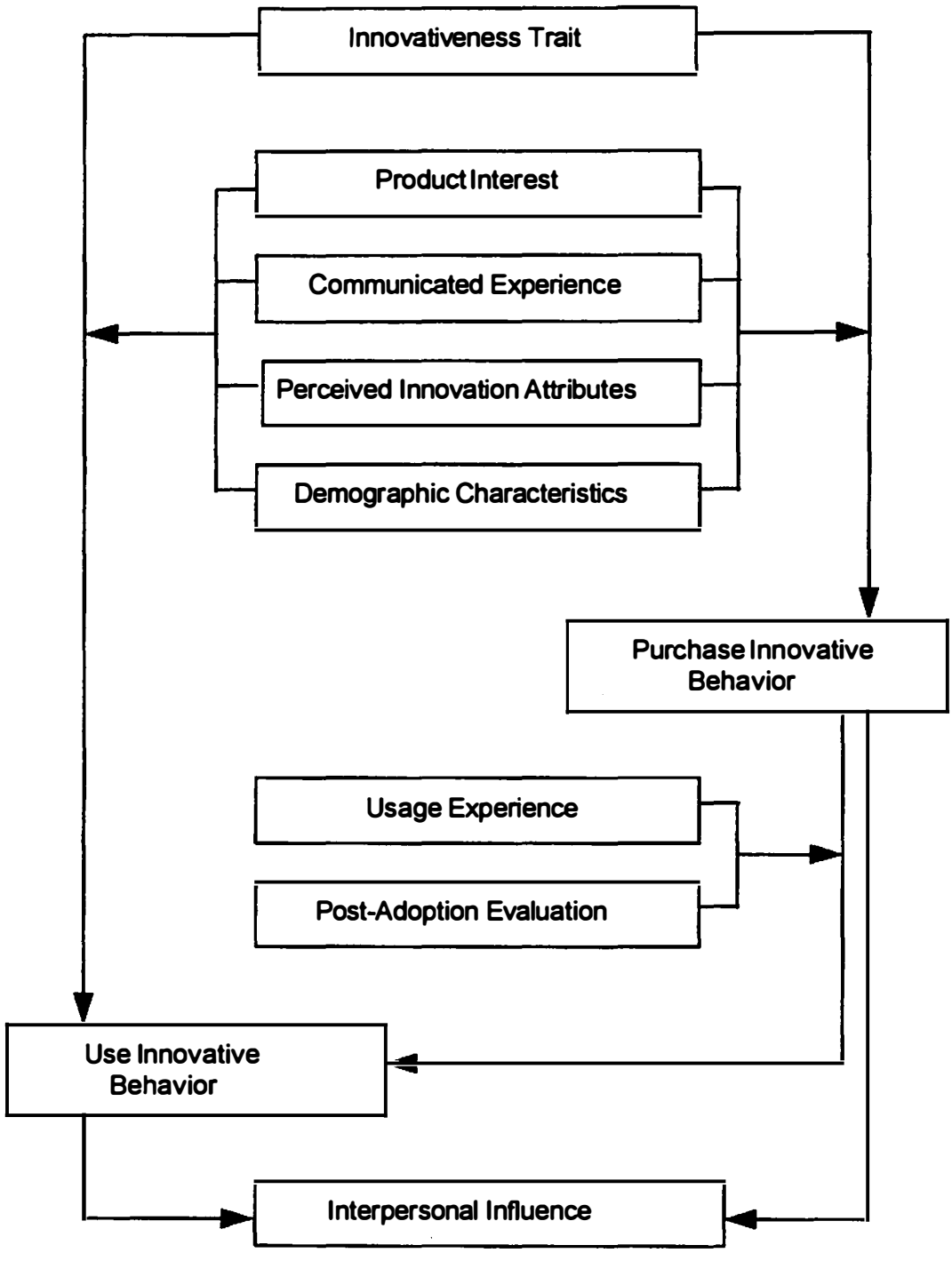

Figure 7. Conceptual Model for Use Innovative Behavior

experience, perceived innovation attributes, and personal characteristics including situational factors (demographic characteristics), this trait is translated to an actual innovative behavior: adoption/purchase of a new product or use of a product in a new way. After the initial adoption/purchase consumers experience different levels of use relative to usage frequency and usage variety. Several variables such as communication since the adoption decision, usage situations, rates of diffusion, and length of use may influence usage behavior. However, factors influencing the initial adoption still influence usage behavior.

Based on their usage experience, consumers have attitudes about the new product. Satisfied consumers will have positive attitudes and they will continue to use the innovation while unsatisfied consumers will decide to discontinue. Continued use exhibits more variety of uses (the 'variety of use' aspect of use innovativeness) due to accumulated use experiences about the new product. Consumers may renew/adapt the new product to other purposes by using it in an unique and innovative way (the 'novel use' of use innovativeness). Moreover, innovative use may be an alternative to future purchase of new products since some consumers may decide to utilize their old products instead of buying new ones to solve a novel consumption problem. These innovative behaviors in purchase and use will be exhibited in different ways by types of innovations. Innovative behaviors will affect diffusion process through different levels of positive or negative interpersonal influence.

CHAPTER III

METHODOLOGY

Construct Definitions

Innovativeness Trait: Willingness to adopt new products or the desire to seek out the new and different (Hirschman 1980).

Product Interest: Interest toward the product category or the product-related behavior.

Communicated Experience: Information seeking activities in order to acquire information about new products and in order to decide whether to adopt the new product or how to use the product.

Perceived Innovation Attributes: Characteristics of new products important in the adoption decision (purchase or use) in terms of relative advantage, compatibility, perceived risk, complexity, triability, and observability (Rogers 1983, p.216, Ostlund 1974).

Demographic Characteristics: Gender, employment status, family income, and spending on clothes[3].

Purchase Innovative Behavior: The actual purchase of a new product (Hirschman 1980).

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[3] These factors are also appropriate to see situational effects of time and resource constraints on innovative behavior (Summers 1971; Midgley and Dowling 1978; Venkatraman 1990).

Use Innovative Behavior: The usage behavior of a previously adopted product in a new way and in a variety of ways (Price and Ridgway 1982).

Usage Experience: Direct experience with the product after the purchase.

Post-Adoption Evaluation: Positive or negative attitude and satisfaction with the product based on the direct usage experience.

Interpersonal Influence: Personal influence through giving information and advice of new products to others.

Hypotheses

H1: Innovativeness Trait, Product Interest, Communicated Experience, Perceived Innovation Attributes (Relative Advantage, Compatibility and Perceived Risk), and Demographic Characteristics (Gender, Employment Status, Family Income and Spending on Clothes) combine to affect Purchase Innovative Behavior and Use Innovative Behavior.

H2: Purchase Innovative Behavior and Use Innovative Behavior are differently affected by Innovativeness Trait, Product Interest, Communicated Experience, Perceived Innovation Attributes (Relative Advantage, Compatibility and Perceived Risk), and Demographic Characteristics (Gender, Employment Status, Family Income and Spending on Clothes).[4]

[4]The purpose of Hypothesis 2 was to investigate the effects of the independent variables on Purchase Innovative Behavior and Use Innovative Behavior, simultaneously. Purchase Innovative Behavior and Use Innovative Behavior were expected to correlate each other, and it was necessary to understand the integrated relationships between the all variables based on the relationship between the two dependent variables - Purchase Innovative Behavior and Use Innovative Behavior and the relationships between the independent variables and each dependent variable.

H3: Purchase Innovative Behavior for the Specific Product (Novelty of Purchase, Time of Purchase and Type of Purchase), Usage Experience and Post-Adoption Evaluation combine to affect Use Innovative Behavior for the Specific Product.

H4: Purchase Innovative Behavior and Use Innovative Behavior affect Interpersonal Influence.

Research Design

Survey by the self-administrated questionnaire was used to gather data for this study. The survey method is appropriate for variables which cannot be easily manipulated, like innovativeness. This study attempts to understand use innovative behavior in post-adoption product usage process based on the innovativeness framework by comparing the two behaviors. Most innovativeness research and product usage behavior research have been successfully conducted by survey method. Therefore, survey by the constructed questionnaire is appropriate for gathering data of this study.

The questionnaire is composed of three sections. Section I tests the effects of Innovativeness Trait and the intervening variables (Product Interest, Communicated Experience, and Perceived Innovation Attributes) on Use Innovative Behavior and Purchase Innovative Behavior (H1, H2) and tests the effects of Use Innovative Behavior and Purchase Innovative Behavior on Interpersonal Influence (H4). Section II tests the post-adoption process for Use

Innovative Behavior of the Specific Product (H3). Section III is for the demographic characteristics.

It is an unique characteristic of clothing product that a number of purchases are accumulated to provide an inventory of available use. A new clothing item, since the first acquisition, is usually retained in the consumer's inventory for appropriate use in future consumption situations (Belk 1979; Sproles 1979). The existing inventory is available to be used together and clothing behavior is a coordination of each item. A combination of several items such as a shirt, pants, shoes, and/or a jacket is usually required for one outfit. Therefore, purchase and usage behavior for the clothing product should be measured toward a general clothing behavior instead toward a single item.

Section I is developed from this consideration. To complement Section I and to understand additional effects of usage behavior in post-adoption consumption process, Section II is applied to the specific clothing product. Use Innovative Behavior applied to a specific product is also expected to contribute to the criterion validity for the Use Innovative Behavior scale.

Operational Definitions

Innovativeness Trait: The self-report on the extent to which the respondent is willing to try something new in different consumption areas.

Product Interest: The self-report on the extent of the respondent's interest to the clothing product and clothing-related behaviors.

Communicated Experience: The self-report on the extent to which the respondent uses clothing/fashion information sources such as print media, store display, and personal discussion.

Perceived Innovation Attributes: The extent to which the respondent perceives characteristics of the clothing important in the purchase decision and/or usage decision.

Relative Advantage: The perceived extent to which the clothing is important in social, and/or psychological aspects (quality, fashion, pretty/good looking and looking attractive) and in functional and/or economic aspects (price, ease of care, comfort, sale item and versatility).

Compatibility: The perceived extent to which the clothing is consistent with existing life styles related to the clothes (matching other styles, fitting with physical appearance, fitting with image, appropriate for occasion and not getting bored with it).

Perceived Risk: The perceived extent to which the clothing is acceptable to others (socially acceptable style and acceptable to others).

Demographic Characteristics:

Gender: Male or female

Employment status: Full-time, part-time, or unemployed

Family Income: Total family income before taxes/year

Spending on Clothes: The extent of spending on wardrobe/year

Purchase Innovative Behavior: The number of perceived new/fashionable clothing items the respondent has purchased in the last two months.

Use Innovative Behavior: The self-report on the extent to which the respondent has used the previously adopted and currently owned clothing products in new ways and in a variety of ways within last two seasons.

Purchase Innovative Behavior for the Specific Product:

Novelty of Purchase: The extent of novelty/fashionability of the clothing item the respondent selected among the products s/he has purchased in the last twelve months.

Time of Purchase: The time the purchase was made.

Type of Purchase: The type of the specific clothing product the respondent selected.

Use Innovative Behavior for the Specific Product: The self-report on the extent to which the respondent has used the specific clothing product in a new way and in a variety of ways since its purchase.

Usage Experience:

Usage Frequency: The extent of use frequency in the past and present, and expected future use frequency.

Usage Variety: The extent of related product ownership and related item purchase.

Post-Adoption Evaluation: The extent of satisfaction and positive attitude to the specific clothing product based on usage experience.

Interpersonal Influence: The self-report on the extent to which the respondent provides information and advice about the new products to others.

Variable Measurements

Innovativeness Trait

Hirschman (1984)'s Novelty Seeking Scale was adapted in order to measure Innovativeness Trait. The Hirschman's scale consisted of the specific questions asking how willing the individual was to seek information that was new and different pertinent to several consumption areas. The original scale consisted of 15 items across 15 consumption domains. The alpha reliability of the scale was .93 (Hirschman 1984).

After the pretest, several items of the scale were removed to raise reliability. Several items were added based on the review of the product series category of the Simmons Study of Media and Markets (1990). The final scale consisted of 13 items. Respondent's willingness on a seven-point scale (from 'with very strong unwillingness' to 'with very strong willingness') was scored with range of 13 to 91. Higher scores meant higher Innovativeness Trait. See Part A of Section I (Appendix A).

Product Interest

Product Interest was measured by the self-report on the extent to which the respondent agreed on the Clothing Interest Scale. Schrank (1973)'s Clothing

Interest Inventory was reviewed. It consisted of 20 items indicating agreement on a five-point scale (from 'strongly disagree' to 'strongly agree') with a reliability of .92 (Schrank 1973). The study used five items of the Schrank's scale after eliminating questions about fashion magazine readership and shopping behavior in order to avoid overlap with the Communicated Experience scale and to make the length of the questionnaire short. The score range was from 5 to 25, where higher scores meant higher Product Interest. See Part B of Section I (Appendix A).

Communicated Experience

The scale was developed based on past research. Communicated Experience consisted of three items (fashion-related print media readership, retail store display, and personal source) on a five-point scale according to the exposure hours to these sources (from 'never' to 'more than 3 hours'). The score range was 3-15, where higher scores meant higher information seeking toward media, retail and personal source. See Part F of Section I (Appendix A).

Perceived Innovation Attributes

The attribute inventory of the clothing product including relative advantage, compatibility, and perceived risk was used. The inventory was developed based

on several sources of past research. After reviewing 68 features of consumer durable products by Holak and Lehmann (1990), negative comments from rejecters of the midi-skirt by Reynolds and Darden (1972), and "types of information entering into the decision process" by Sproles (1979, p.192), 20 clothing attributes were developed for the attribute inventory of the clothing product. Both of socio-psychological and functional attributes were considered. Each attribute was described briefly as suggested by Armstrong and Overton (1971) and Holak and Lehmann (1990).

The respondent was asked to indicate how important each attribute was in purchasing a new product and using a product on a 5-point scale (from 'very unimportant' to 'very important'). The format of the question was borrowed from Venkatramann (1991). The inventory was factor analyzed during the pretest and modified based on the results of the pretest. The final inventory consisted of 16 items which were divided by factor analysis into relative advantage, compatibility, and perceived risk. See Variable Descriptions of CHAPTER V and Part D of Section I (Appendix A).

Demographic Characteristics

Gender (Q1), Major (Q2), School Year (Q3), Race (Q4), Employment Status (Q5), Family Income (Q6), and Spending on Clothes (Q7) were included. Questions for demographic characteristics were used or adapted from those of

Dilman (1978) and Sudman and Bradburn (1982). See Section III (Appendix A).

Purchase Innovative Behavior

The scale was developed based on the cross-sectional method by Midgley and Dowling (1978), and the guideline by Hirschman (1980). The cross-sectional method is appropriate for a product category where a number of innovations co-exist at a specific time, and innovations are continuous. This method is based on the assumption that earlier adoption results in more adoptions on the specific time period (Midgley and Dowling 1978). The respondents were asked what clothing items they had purchased in the last two months, and asked to evaluate the degree of novelty in fashion of each item they listed. Therefore, the scale consisted of two parts: first, the open-ended question about items the respondent had purchased in the last two months (the respondent was asked to fill out the clothing category blanks) and second, the perceived degree of novelty/fashionability of each item on a five-point scale (from 'very conservative/traditional style' to 'trend-setting/extremely new fashion style').

Each actual purchase was weighted to 1 point, and degree of novelty/fashionability was weighted to 1-5 points. For each item the respondent listed, actual purchase score (1 point) and the degree of novelty/fashionability score (1-5 point) were multiplied. Purchase Innovative Behavior was sum scores of all items. Higher scores meant higher Purchase Innovative Behavior. See Part

E of Section I (Appendix A).

Similar methods have been used for innovativeness measurement, but most methods started with the researchers' definitions of innovations/new products and measured innovativeness based on whether respondents adopted those given innovations or not. This study makes respondents define innovations. This method has an advantage. According to Rogers (1983, p.19), an innovation depends on the consumer's perception. Sproles (1979, p.99) also argues that "the innovation need not be new in an absolute sense. What is important is individual's perception of an object as new ..... A product may have been available for some time ..... It remains new until individual has learned about the innovation." Sproles defines a fashion innovation as a style or design "perceived as new by an individual."

Use Innovative Behavior

Hirschman (1980) suggested measuring Use Innovative behavior by asking respondents whether they had encountered any new consumption problems lately that they solved by using a product they already had or whether they had used any product they owned in a new or unusual way, and then asking to describe the new use. However, wearing and using clothing are daily activities. It was extremely difficult to measure it by making the respondent report actual usage behavior based on the memory. Therefore, an alternative scale was developed based on

the guidelines provided by Hirschman and on the specific usage behavior and use pattern questions provided by Price and Ridgway (1983).

The scale, which was developed for the clothing product, asked the respondents the extent to which they had used clothing in new ways and in a variety of ways in the last two seasons. After the pretest the final scale consisted of seven items on a seven-point scale (from 'never' to 'always'). The score range was 7 to 49 where higher score meant higher use innovative behavior. See Part G of Section I (Appendix A).

Purchase Innovative Behavior for the Specific Product

The Specific Product was measured by asking the respondent to select one product that was the most novel/fashionable clothing item purchased during the last twelve months. It depended on each respondent's perception.

Purchase Innovative Behavior for the Specific Product was measured by 1) Novelty of Purchase: the perceived novelty/fashionability of the Specific Product on a 5-point scale (from 'very conservative/traditional style' to 'trend-setting/extremely new fashion style') (Q3, Section II), 2) Time of Purchase: the month and year when the Specific Product was purchased (Q2, Section II), and 3) Type of Purchase: one of five clothing categories the Specific Product belonged to (Q1, Section II) (Appendix A).

Novelty of Purchase was intended to replace Purchase Innovative Behavior applied to a Specific Product. Type of Purchase and Time of Purchase were included to complement Novelty of Purchase since those were expected to affect the relationship of Purchase Innovative Behavior and Use Innovative Behavior.

Use Innovative Behavior for the Specific Product

It was measured by the same scale as that of Use Innovative Behavior, but the scale was adapted for the Specific Product (Q13-19, Section II) (Appendix A).

Usage Experience

Usage Frequency questions were adapted from those of Ram and Jung (1990). Usage Frequency was measured by summing 1) how often the respondent had used the Specific Product in the past (past usage frequency), 2) how often the respondent used the Specific Product at present (present usage frequency), and 3) how often the respondent expected to use the Specific Product in the next two seasons (future usage frequency) on 7-point scales (from 'never' to 'daily') (Q6-8, Section II) (Appendix A).

Usage Variety was measured by summing 1) how many similar items the respondent owned, and 2) how many other items the respondent had purchased to complement the Specific Product on 4-point scales (from 'never' to 'lots of

items') (Q4-5, Section II). It was developed based on past research.

Post-Adoption Evaluation

Post-adoption evaluation was the index formed by summing 1) overall satisfaction about the Specific Product on a 7-point scale which was based on Ridgway and Price (1984) and Anderson and Ortinau (1988) (Q9, section II), and 2) the respondent's attitude toward the Specific Product on three 7-point scale items: like-dislike, positive-negative, favorable-unfavorable (based on the post-adoption attitude measurement by Ram and Jung 1991). The score range was 4 to 28, where higher score meant higher Post-Adoption Evaluation (Q10-12, section II) (Appendix A).

Interpersonal Influence

It was measured by Reynolds and Darden (1971)'s Opinion Leadership Scale for clothing fashion. The original scale consisted of five items on a five-point scale (from 'definitely false' to 'definitely true') with the reliability of .79 (Reynolds and Darden 1971). During the pretest, one item was removed because of a low item-to-total correlation. Therefore, the final scale consisted of four items with 4 to 20 score ranges. Higher scores meant higher opinion leadership (Part C of Section I) (Appendix A).

Pretest

Pretest 1

The questionnaire was pretested by 6 convenient subjects (4 graduate and 2 undergraduate students). Each subject was asked to make free comments to improve the quality of the questionnaire as well as to complete the questionnaire. The questionnaire was first-revised in terms of wording, format, rating scales, and others to improve the measurement of the scales.

Pretest 2 and Focus Group Interview 1

The revised questionnaire from Pretest 1 was pretested with 66 subjects who were enrolled in a marketing class of Summer 1992. Six of the students who completed the questionnaire participated in the Focus Group Interview 1 on August 7, 1992.

Pretest 2 was statistically analyzed for the scale development. Cronbach's alpha, item-to-total correlation, and factor analysis were used. Basic correlations were also estimated. The questionnaire was second-revised based on the statistical tests and Focus Group Interview 1.

Focus Group Interview 2

To confirm the revised questionnaire, six graduate students in the Ph.D program participated in Focus Group Interview 2 on September 1, 1992 since they were judged to be experienced in research. They completed the questionnaire, and participated in the discussion for the improvement of the scale measurement and questionnaire development. The final questionnaire was revised based on all the previous steps of pretests. Table 4 shows the pretest results and major revisions.

Sample

College students of the University of Tennessee, Knoxville were the subjects of this study. The student sample was selected based on the following reasons: First: It was judged that a homogeneous sample would be appropriate for this study since the study of use innovative behavior for clothing was in an exploratory stage on research; Second: College students could be a market segment accessed easily, and thus, it was judged to be worthwhile to understand this specific consumer group; Third: A low response rate was expected because the questionnaire for this study was relatively long, and thus, it was judged that a homogeneous sample with higher response rate would overcome non-response error.

Table 4
Pretest Results and Revisions

Scale	Items	Alpha*	Major Revisions
Innovativeness Trait	15	.70	Items dropped and added
Product Interest	6	.85	One item dropped
Communicated Experience	5	.74	Rating scale: from 7-point to 5-point, Two items dropped
Perceived Innovation Attributes	20	.88	Items dropped and added
Purchase Innovative Behavior			Time period: from last six month to last two month
Use Innovative Behavior	8	.81	Items dropped, Time period: from last six month to last two seasons
Use Innovative Behavior for the specific Product	8	.85	Items dropped,
Purchase for the Specific Product:			
Type	1		Category reduced
Time	1		
Novelty	1		
Usage Experience:			
Use Frequency	2	.81	Category modified
Use Variety	2		Category modified
Post-Adoption Evaluation	5	.77	One item dropped
Interpersonal Influence	5	.84	One item dropped

* Alpha before the revision

Student enrollment information by major, school year, and class enrollment for the Fall Semester of 1992 was acquired from the Student Data Analysis of the University of Tennessee, Knoxville. By the cluster sampling method, several classes which were judged to represent the population best based on the compositions of majors and school years of students were selected. Seven classes with approval of instructors to conduct the survey were finally selected. The students who were enrolled in one of these classes were the sample for this study.

Data Collection

Data was collected during the regular class meetings of seven classes between September 25, 1992 and October 12, 1992. Students in the class were asked to participate the survey, and the questionnaire was distributed to the volunteers and returned during the class hours. It took about 20 minutes to fill out the questionnaire. Students who had already participated in this survey from the pretests or other classes were asked not to complete the questionnaire.

The total number of responses collected was 586. Except uncompleted and unusable responses, 539 responses were used for the data analysis. Table 5 shows student frequencies by class.

Table 5
Student Frequencies by Class

Class	Frequency	Percent of Total
A	194	36.0
B	71	13.2
C	24	4.5
D	53	9.8
E	22	4.1
F	89	16.5
G	86	16.0
	N=539	100.0

Data Analysis

Reliability and Validity

1. Cronbach's alpha was estimated for reliability tests of the scales. Alpha, which is the internal consistency estimate, is a most useful formula for assessing the reliability of measures (Peter 1979). Above a coefficient alpha of 0.80 is usually accepted in social sciences. Alpha is appropriate for scales containing a minimum of three items (Peter 1979), and thus, was estimated for the scales of Innovativeness Trait, Product Interest, Communicated Experience, Perceived Innovation Attributes, Use Innovative Behavior, Use Innovative Behavior for the Specific Product, Usage Experience, Post-Adoption Evaluation, and Interpersonal Influence.
2. Alpha estimates the average correlation of all items in the scale. To see the relation of each item to the scale and drop out items which contributed to the low alpha coefficient, and thus to raise reliability, item-to-total correlation was also analyzed for each scale. An item was dropped from the scale when its item-to-total correlation was 0.40 or below.
3. Scales such as Perceived Innovation Attributes, Use Innovative Behavior, and Usage Experience were expected to contain multiple dimensions, while other scales were expected to have unidimensional attributes. Principle component factor analysis with varimax rotation, if necessary, was used to

see dimensionality of each scale and to significantly divide the scales into the intended dimensions.

Hypothesis Tests

1. Oneway analysis and Scheffee's multiple range test were used to regroup categorical variables (Type of Purchase and Novelty of Purchase) into smaller categories based on the differences among the groups and to use them as dummy variables.
2. Pearson correlation coefficient was estimated to see bivariate relationships between each of the independent and dependent variables for H1.
3. Multiple regression analysis was used to see the effects of the independent variables on the dependent variable for H1, H3, and H4.
4. Stepwise regression analysis was used to identify the best predictors of the dependent variable for H1 and H3.
5. Path coefficient was estimated to examine the causal relationships among the variables for H1 and H3. Path analysis was used for an additional analysis to test the conceptual model and was based on the best predictor variables by stepwise regression.
6. Four groups were classified based on the scores of Purchase Innovative Behavior and Use Innovative Behavior. Based on the median score, each of Purchase Innovative Behavior and Use Innovative Behavior was divided

into two groups of high and low scores. By cross-classification, four groups were classified. Multiple discriminant analysis by stepwise method was used for H2 to see if the groups differed significantly from one another, and if they differed, to see the nature of their differences.

All statistical procedures for this study used the SPSS program. There were reasons why several steps, which might be overlapped, were used for the tests of Hypothesis 1 and Hypothesis 3 and why structural equations were avoided at the first step. First, this study was judged to be exploratory research to investigate use innovativeness for the clothing product, something not available in the literature. The conceptual model for use innovative behavior of this study was not believed to be perfect because, even though there were valid assumptions that all the independent variables might affect use innovative behavior, it was not enough to assume the causal relationships among the independent variables. Second, this study was more concerned with identifying the predictors of use innovative behavior which might be examined more closely in future research.

CHAPTER IV

RESULTS AND DISCUSSION

Demographic Descriptions of Sample

Demographic descriptions of the respondents are presented in Table 6. Of the respondents, 59.7 percent were female, while 40.3 percent were male. Human Ecology majors and Liberal Arts majors accounted for 57.0 percent of the sample, and Business majors constituted 15.4 percent. A relatively small percent were freshman (9.5 %), while larger percent were junior (35.4 %). Most respondents were white (90.5 %).

Most respondents were either unemployed or part-time employed, 43.8 percent and 48.2 percent, respectively. Annual family income ranged about evenly from less than $10,000 to over $70,000, but the largest percent (28.2%) reported over $70,000 in income per year. The majority of respondents (58.1%) spent $200 to $999 on clothes last year (33.2% for $200-499 and 24.9% for $500-999).

Variable Descriptions

The reliability/validity test results and univariate descriptives of the variables are presented in Table 7.

Table 6
Demographic Descriptions of Sample

Characteristic	Frequency	Percent of Total
Gender:		
Male	217	40.3
Female	322	59.7
	N=539	100.0
Major:		
Agriculture	5	.9
Architecture	3	.6
Business Administration	83	15.4
Communication	24	4.5
Education	49	9.1
Engineering	20	3.7
Human Ecology	154	28.6
Liberal Arts	153	28.4
Nursing	17	3.2
Social Work	3	.6
Undecided	28	5.2
	N=539	100.0
School Year:		
Freshman	51	9.5
Sophomore	125	23.2
Junior	191	35.4
Senior	158	29.3
2nd Senior	14	2.6
	N=539	100.0

Table 6 (Continued)

Characteristic	Frequency	Percent of Total
Ethnity:		
White	488	90.5
Black	18	3.3
Asian	23	4.3
Hispanic	2	.4
American Indian	4	.7
Other	4	.7
	N=539	100.0
Employment Status:		
Full-time Employed	43	8.0
Part-time Employed	260	48.2
Unemployed	236	43.8
	N=539	100.0
Family Income:		
Less than $10,000	65	12.6
10,000 - 19,999	49	9.5
20,000 - 29,999	40	7.7
30,000 - 39,999	44	8.5
40,000 - 49,999	60	11.6
50,000 - 59,999	70	13.5
60,000 - 69,999	43	8.3
Over $70,000	146	28.2
	N=517	100.0
Spending on Clothes:		
Below $200	80	14.8
200 - 499	179	33.2
500 - 999	134	24.9
1,000 - 1,499	73	13.5
1,500 - 1,999	32	5.9
Above $2,000	41	7.6
	N=539	100.0

Table 7
Variable Descriptions

Scale	Items	Alpha	Factor	Mean	SD	Range
Innovativeness Trait	13	.93	Unidimension	70.46	14.55	13-91
Product Interest	5	.87	Unidimension	17.13	5.04	5-25
Communicated Experience	3	.80	Unidimension	6.94	2.65	3-15
Perceived Innovation Attributes	16	.83	Four factors			
Relative Advantage: Functional	5			19.60	3.58	5-25
Relative Advantage:Socio-psychological	4			17.11	2.60	5-20
Compatibility	5			20.32	3.40	8-25
Perceived Risk	2			6.84	2.08	2-10
Purchase Innovative Behavior				19.97	16.56	0-123
Use Innovative Behavior	6	.86	Unidimension	25.27	6.64	6-42
Use Innovative Behavior for the Specific Product	6	.92	Unidimension	22.36	8.38	6-42

Table 7 (Continued)

Scale	Items	Alpha	Factor	Mean	SD	Range
Usage Experience	2	.85	Unidimension	6.85	2.68	2-14
Post-Adoption Evaluation	4	.94	Unidimension	24.87	4.06	4-28
Interpersonal Influence	4	.88	Unidimension	12.94	4.25	4-20

Innovativeness Trait

The alpha coefficient of the Innovativeness Trait scale, which contained 13 items, was 0.93. Factor analysis showed the scale was unidimensional. One factor was extracted, the eigen value of which was 7.18, which explained 55.1 percent of the variance.

Product Interest

Negatively worded item 2 and item 5 were reverse coded. The alpha coefficient of the scale was 0.87. One factor was extracted from 5 items of the scale. The eigen value of the factor was 3.33, and it explained 66.6 percent of the variance.

Communicated Experience

The alpha coefficient of the scale was 0.80, and 3 items of the scale resulted in one factor. The eigen value was 2.15, and it explained 71.6 percent of the variance.

Perceived Innovation Attributes

The alpha coefficient of the 16 item scale was 0.83. Four factors were extracted from a principle component factor analysis with varimax rotation. The eigen values of each of the factors were greater than one, and thus all four factors were included. Based upon factor loading of each item, which represented the degree of correlation between the item and the factor, five items including item 10 (matching other styles I have), item 11 (fitting with my physical appearance), item 12 (fitting with my image), item 13 (appropriate for occasion), and item 16 (not getting bored with it after buying) were highly loaded to Factor 1. Factor 1 was labeled "Compatibility."

Five items including item 1 (price), item 5 (ease of care), item 6 (comfort), item 7 (sale item) and item 8 (versatility) were highly loaded to Factor 2. Factor 3 included four items, item 2 (quality), item 3 (fashion), item 4 (pretty/good looking) and item 9 (looking attractive). Factor 2 represented functional aspects, and was labeled "Relative Advantage: Functional." Factor 3 represented symbolic aspects and was labeled "Relative Advantage: Socio-Psychological." Two items, item 14 (socially acceptable style) and item 15 (acceptable to others) were highly loaded to Factor 4, which was labeled "Perceived Risk." The factor analysis results are presented in Table B-1. Four factors including Compatibility, Relative Advantage: Functional, Relative Advantage: Socio-psychological, and Perceived Risk were the expected results of Perceived Innovation Attributes and were separately analyzed

for further hypothesis testing.

Purchase Innovative Behavior

The actual range in scores for Purchase Innovative Behavior was from 0 to 123 but the scores were distributed mostly between 0 and 50 (94.8%).

Use Innovative Behavior

The alpha coefficient of the scale was 0.84. Item 6 (I have used existing clothes rather than buying new ones when faced with an occasion in which I need a new outfit) showed a low item-to-total correlation (0.35) and was removed from the scale. Thus, six items were used for the Use Innovative Behavior scale. The alpha of the six items was 0.86. The scale resulted in one factor, which explained 59.1 percent of the variance with an eigen value of 3.54 for the single factor.

Use Innovative Behavior for the Specific Product

To be consistent with the Use Innovative Behavior scale, item 6 (I have used the clothing item rather than buying new ones when faced with an occasion in which I need a new outfit) was removed from the scale. The alpha coefficient of the six items was 0.92. One factor was extracted and it explained 72.6 percent

of the variance with an eigen value of 4.36 for the one factor. The mean was lower than that of Use Innovative Behavior which implied Use Innovative Behavior in a general sense was more easily observed than that for a specific clothing item, probably because clothing usage came from combination of several items in most cases.

The alpha coefficient of the twelve items of Use Innovative Behavior and Use Innovative Behavior for the Specific Product was 0.90. The Pearson correlation coefficient of the two scales was 0.47 ($p<.01$). These results partially indicated the criterion validity of the Use Innovative Behavior scale.

Usage Experience

The alpha coefficient of the five items was 0.60. Usage Experience was expected to have two-dimensions of Usage Frequency and Usage Variety. Two factors were extracted as expected. Past usage frequency, present usage frequency and expected future usage frequency were highly loaded to Factor 1, and similar style ownership and related item purchase were relatively highly loaded to Factor 2. See Table B-2.

The alpha was estimated for each factor again. Factor 1 (Usage Frequency) showed 0.71, but the expected future usage frequency showed a low item-to-total correlation (0.33) and was removed from the scale. The Usage Frequency dimension consisting of two items (past usage frequency and present

usage frequency) had an alpha coefficient of 0.85. The alpha of Factor 2 (Usage Variety) was 0.33, which meant very low internal consistency. Factor 2 was dropped from the Usage Experience scale. Therefore, two items, which explained Usage Frequency, were retained in the Usage Experience scale for further hypothesis testing and the alpha was 0.85.

Post-Adoption Evaluation

The alpha coefficient was 0.94. The four items of the scale resulted in one factor, which explained 85.6 percent of the variance with an eigen value of 3.42 for that factor. A product with which a consumer is highly satisfied tends to be easily remembered, and the respondent might select this product when asked to select a product. This may be a reason why post-adoption evaluation is highly skewed in the frequency distribution.

Interpersonal Influence

The alpha coefficient was 0.88. One factor was extracted from the four items and it explained 74.3 percent of the variance with an eigen value of 2.97.

Purchase Innovative Behavior for the Specific Product

Novelty of Purchase

Approximately 36 percent of respondents reported that the Specific Product they purchased was a fairly new fashion style and 28.8 percent reported it was a conservative or not new fashion style, while 35.3 percent reported their clothing item as a very new fashion or trend-setting style as shown in Table 8.

Type of Purchase

About 38 percent of respondents selected Shirts/Blouse/T-shirt/Sweater as the most fashionable clothing items that they purchased during the last 12 months. About 24.5 percent selected Dress/Suit/Two-piece Outfit as their most fashionable purchases, and 17.6 percent and 16.7 percent selected, respectively, Jacket/Blazer/Vest/Coat and Pants/Shorts/Skirts as shown in Table 8.

Time of Purchase

The majority of respondents (72 %) reported that they purchased the Specific Product in the last four months, and 49.2 percent of respondents reported they purchased the Specific Product in the last two months. See Table 8.

Table 8
Purchase Innovative Behavior for the Specific Product

Purchase Innovative Behavior	Frequency	Percent of Total
Novelty of Purchase:		
Very conservative/ traditional style	72	13.4
Not new fashion/ conservative style	83	15.4
Fairly new fashion style	194	36.0
Very new fashion style	126	23.4
Trend-setting/extremely new fashion style	64	11.9
	N=539	100.0
Type of Purchase:		
Shirts/Blouse/T-shirt/ Sweatshirt/Sweater	204	37.8
Jacket/Blazer/Vest/Coat	95	17.6
Pants/Shorts/Skirt	90	16.7
Dress/Suit/Two-piece Outfit	132	24.5
Other	18	3.3
	N=539	100.0

Table 8 (Continued)

Purchase Innovative Behavior	Frequency	Percent of Total
Time of Purchase:		
09/92	9	1.7
10/92	7	1.3
11/92	15	2.8
12/92	22	4.1
01/93	19	3.5
02/93	15	2.8
03/93	16	3.0
04/93	16	3.0
95/93	32	5.9
06/93	60	11.1
07/93	63	11.7
08/93	139	25.8
09/93	126	23.4
	N=539	100.0

Hypothesis Test Results

Hypothesis 1

H1: Innovativeness Trait, Product Interest, Communicated Experience, Perceived Innovation Attributes (Relative Advantage, Compatibility and Perceived Risk), and Demographic Characteristics (Gender, Employment Status, Family Income and Spending on Clothes) combine to affect Purchase Innovative Behavior and Use Innovative Behavior.

The following several steps were undertaken for the test of Hypothesis 1. First, Pearson correlation coefficients were estimated in order to investigate bivariate relationships between each of the independent variables and the dependent variables. An independent variable of very low correlation coefficient or insignificant p-value was dropped for further analyses. Second, the effects of the independent variables retained from the earlier correlation analysis on each of the dependent variables were tested by multiple regression analyses separately. Third, to select the best predictors of Purchase Innovative Behavior and Use Innovative Behavior, two separate stepwise regression analyses were used.

Finally, among the best predictors of each of Purchase Innovative Behavior and Use Innovative Behavior, the direct and indirect effects among the variables were tested by estimating path coefficients. Path analysis was an additional analysis to test the conceptual model and to understand the causal relationships among the related variables.

Treatment of categorical variables

Before the Hypothesis 1 test, some categorical variables were arranged for further analyses.

Employment Status: Employment Status had three categories, full-time employed, part-time employed, and unemployed. Only 8 percent of the respondents were full-time employed. Employment Status was regrouped into 2 groups: Employed (full-time and part-time) and Unemployed that were recoded as 0 and 1, respectively.

Spending on Clothes: Six categories were regrouped into five, in which category 1 and 2 (below $200 and $200-499) were combined in order to make the range within the categories equal.

Bivariate relationships: Pearson correlation

Table 9 shows the correlation coefficients between each of the 11 independent variables, from Innovativeness Trait to Spending on Clothes, and each of Purchase Innovative Behavior and Use Innovative Behavior. Communicated Experience, Product Interest, and Gender (female rather than male) had the strongest relationships with both innovative behaviors. Purchase Innovative Behavior was more related to the amount of spending of the respondents, while product attributes (compatibility with current clothing related life styles) was more related to use innovative behavior.

Low coefficients of Innovativeness Trait to Purchase Innovative Behavior and Use Innovative Behavior ($r=.14$, $r=.17$, respectively) indicated that neither of

Table 9
Correlation Coefficients

Variable	Purchase Innovative Behavior	Use Innovative Behavior
Innovativeness Trait	.14**	.17**
Product Interest	.38**	.35**
Communicated Experience	.45**	.38**
Relative Advantage: Functional	-.08	.07
Relative Advantage: Socio-psychological	.23**	.19**
Compatibility	.20**	.30**
Perceived Risk	.10*	.02
Gender	.29**	.37**
Employment Status	-.12**	-.12**
Family Income	.11*	.03
Spending on Clothes	.44**	.15**

* $p<.05$
** $p<.01$

the relationships between a willingness to innovate and the innovative behaviors was especially strong, even though they were statistically significant.

Relative Advantage: Socio-psychological was positively related to Purchase Innovative Behavior and Use Innovative Behavior with moderate but significant magnitudes (r=.23, r=.19, respectively), while Relative Advantage: Functional was not significantly related to either of the innovative behaviors. This suggested that symbolic aspects were more important than functional aspects in clothing innovative behaviors of both purchase and use.

Perceived Risk and Family Income were not significantly related to Use Innovative Behavior (r=.02, r=.03 with p>.05, respectively). Even though Perceived Risk and Family Income had significant relationships with Purchase Innovative Behavior, those variables had relatively small correlation relationships (r=.10, r=.11, respectively). It indicated that whether the product was socially acceptable style was more important in purchasing a new product than in using the product in an innovative way. Financial resources were more strongly related to the Purchase Innovative Behavior than to Use Innovative Behavior, which was a reasonable finding.

Employment Status was significantly related to Purchase Innovative Behavior (r=-.12) and Use Innovative Behavior (r=-.12), but the correlation coefficients were not large. Negative correlation coefficients indicated that employed college student respondents had higher Purchase Innovative Behavior and Use Innovative Behavior than unemployed college student respondents.

Because some variables were expected to correlate each other, using less variables could possibly provide more precise results in the identification of the predictors of Innovative Behaviors. Therefore, Relative Advantage: Functional, Family Income, and Perceived Risk were dropped for further analyses "under the guiding principles that fewer is better - an empirical model using a few predictors is more useful than one using more predictors (Weisberg 1980, p.174)." Table 10 shows the retained and the removed variables from the correlation results for further analyses.

Multiple regression

Multiple regression for Purchase Innovative Behavior: Eight variables retained from the correlation results were used. The eight independent variables explained 30 percent of Purchase Innovative Behavior (R^2=.30, p<.0001) as shown in Table 11. Spending on Clothes, Communicated Experience, Gender, and Employment Status significantly affected Purchase Innovative Behavior (Beta=.29 and p<.0001, Beta=.24 and p<.0001, Beta=.10 and p<.05, Beta=-.08 and p<.05, respectively), while Innovativeness Trait, Product Interest, Compatibility, and Relative Advantage: Socio-psychological did not significantly affect Purchase Innovative Behavior (p>.05).

Multiple regression for Use Innovative Behavior: The eight independent variables explained 24 percent of Use Innovative Behavior (R^2=.24, p<.0001) as shown in Table 12. Communicated Experience, Gender, Compatibility, Product Interest, and

Table 10
Independent Variables for Innovative Behavior

Retained Variables from Correlation	Removed Variables from Correlation
Innovativeness Trait	
Product Interest	
Communicated Experience	
Perceived Innovation Attributes	Perceived Innovation Attributes
Relative Advantage: Socio-psychological	Relative Advantage: Functional
Compatibility	Perceived Risk
Demographic Characteristics	Demographic Characteristics
Gender	Family Income
Employment Status	
Spending on Clothes	

Table 11
Multiple Regression for Purchase Innovative Behavior

Analysis of Variance

	DF	Sum of Squares	Mean Square	F	R^2
Regression	8	42814.49	5351.81	27.62****	.30
Residual	506	98060.89	193.80		

Variables in the Equation

Variable	B	Beta	T
Innovativeness Trait	.05	.05	1.19
Product Interest	.15	.05	.90
Communicated Experience	1.49	.24	4.95****
Relative Advantage: Socio-psychological	.47	.07	1.54
Compatibility	-.21	-.04	-.90
Gender	3.22	.10	2.26*
Employment Status	-2.57	-.08	-2.06*
Spending on Clothes	3.82	.29	6.75****

* p<.05
** p<.01
*** p<.001
**** p<.0001

Table 12
Multiple Regression for Use Innovative Behavior

Analysis of Variance

	DF	Sum of Squares	Mean Square	F	R^2
Regression	8	5683.38	710.42	20.80****	.24
Residual	529	18064.07	34.15		

Variables in the Equation

Variable	B	Beta	T
Innovativeness Trait	.04	.09	2.24*
Product Interest	.17	.13	2.40*
Communicated Experience	.47	.20	3.82***
Relative Advantage: Socio-psychological	-.20	-.08	-1.63
Compatibility	.30	.16	3.20**
Gender	2.72	.20	4.63****
Employment Status	-1.00	-.07	-1.94
Spending on Clothes	-.26	-.05	-1.11

* p<.05
** p<.01
*** p<.001
**** p<.0001

Innovativeness Trait significantly affected Use Innovative Behavior (Beta=.20 with p<.001, Beta=.20 with p<.0001, Beta=.16 with p<.01, Beta=.13 with p<.05, Beta=.09 with p<.05, respectively), while Relative Advantage: Socio-psychological, Spending on Clothes, and Employment Status did not significantly affect Use Innovative Behavior (p>.05).

In summary, predictability of eight variables for Purchase Innovative Behavior and Use Innovative Behavior were relatively low (R^2=.30, R^2=.24, respectively). Subsequently, variable selection by stepwise regression was used to identify the best subsets of Use Innovative Behavior and to compare the subsets with those of Purchase Innovative Behavior.

Stepwise regression

Stepwise regression for Purchase Innovative Behavior: Table 13 shows the results of stepwise regression analysis. Three independent variables including Communicated Experience (Beta=.28, p<.0001), Spending on Clothes (Beta=.30, p<.0001), and Gender (Beta=.11, p<.01) were the best predictors of Purchase Innovative Behavior. These three variables explained 29 percent of Purchase Innovative Behavior (R^2=.29, p<.0001), while the full model with eight variables explained only 30 percent of Purchase Innovative Behavior (R^2=.30). It indicated that statistically the three variables were as efficient as eight.

Therefore, Communicated Experience, Spending on Clothes, and Gender were the subsets selected to predict Purchase Innovative Behavior. It indicated

Table 13
Stepwise Regression for Purchase Innovative Behavior

Analysis of Variance

	DF	Sum of Squares	Mean Square	F	R^2
Regression	3	40919.09	13639.70	69.73****	.29
Residual	511	99956.28	195.61		

Variables in the Equation

Variable	B	Beta	T
Communicated Experience	1.74	.28	6.41****
Spending on Clothes	3.96	.30	7.29****
Gender	3.86	.11	2.80**

* p<.05
** p<.01
*** p<.001
**** p<.0001

that the respondents who used more clothing/fashion information sources such as print media, store display and personal discussion, who spent more on clothes, and who were female rather than male tended to buy more new/fashionable clothes.

Stepwise regression for Use Innovative Behavior: Four variables including Communicated Experience (Beta=.23, p<.0001), Gender (Beta=.22, p<.0001), Compatibility (Beta=.14, p<.001), and Innovativeness Trait (Beta=.08, p<.05) were selected as the best predictors of Use Innovative Behavior, and these four variables explained 22 percent of Use Innovative Behavior (R^2=.22, p<.0001), while the full model of eight variables explained only 24 percent. The stepwise regression results are presented in Table 14.

Therefore, Communicated Experience, Gender, Compatibility, and Innovativeness Trait were the subsets that together were enough to predict Use Innovative Behavior. These indicated that the respondents who used more clothing/fashion information sources such as print media, store display and personal discussion, who were female rather than male, who perceived the attribute of clothing in terms of whether it was compatible with existing clothing life styles (matching other styles, fitting with physical appearance and image, appropriate for occasion, and not getting bored with it) more importantly, and who had higher willingness to try something new across different consumption areas tended to use clothing in innovative ways.

Table 14
Stepwise Regression for Use Innovative Behavior

Analysis of Variance

	DF	Sum of Squares	Mean Square	F	R^2
Regression	4	5303.74	1325.93	38.32****	.22
Residual	533	18443.72	34.60		

Variables in the Equation

Variable	B	Beta	T
Communicated Experience	.57	.23	5.27****
Gender	2.97	.22	5.09****
Compatibility	.28	.14	3.46***
Innovativeness Trait	.04	.08	2.08*

* p<.05
** p<.01
*** p<.001
**** p<.0001

The best predictors for Purchase Innovative Behavior and Use Innovative Behavior are presented in Table 15. According to several steps including correlation, multiple regression with the full model, and stepwise regression with the reduced model, the following conclusions were provided for Hypothesis 1.

Communicated Experience and Gender were the best predictors for the innovative behaviors in purchase and use both. That is, the respondents who used more clothing/fashion information sources such as print media, retail store display and personal discussion and who were female rather than male tended to use clothing products in more innovative ways as well as buying more new clothing products.

Spending on Clothes, Compatibility, and Innovativeness Trait were the best predictors in differentiating the innovative behaviors into Purchase Innovative Behavior and Use Innovative Behavior. That is, the respondent's financial resources (Spending on Clothes) explained Purchase Innovative Behavior more than Use Innovative Behavior while the perception of product attributes (the new clothing's compatibility with existing life styles relative to clothing behavior) and a willingness to try something new explained Use Innovative Behavior better than explained Purchase Innovative Behavior.

These results support Hirschman (1980)'s notion that actualized novelty seeking and vicarious innovativeness, both of which represent information seeking activities (Communicated Experience), are origins of purchase and use innovativeness. The results also support Hirschman (1980)'s notion that highly

Table 15
The Best Predictors for Innovative Behavior

Purchase Innovative Behavior	Use Innovative Behavior
	Innovativeness Trait
Communicated Experience	Communicated Experience
	Perceived Innovation Attributes
	Compatibility
Demographic Characteristics	Demographic Characteristics
Gender	Gender
Spending on Clothes	

creative consumers do not always buy a new product but are more competent in product evaluation (Perceived Innovation Attributes) and based on their evaluation they may not decide to buy a new product but use an existing product in a new way (no significant relationship of Spending on Clothes to Use Innovative Behavior).

Path analysis

First, path analysis was used for overall Purchase Innovative Behavior and Use Innovative Behavior. Second, because Gender affected both Innovative Behaviors, separate path analysis was used by female and male groups. Moreover, when the results of the two groups were compared, similar findings for the two groups could indicate whether the model was stable.

Path analysis for Purchase Innovative Behavior: The following equations were used.

Spending on Clothes = *f* (Communicated Experience)

Purchase Innovative Behavior = *f*(Communicated Experience, Spending on clothes)

Communicated Experience was a significant antecedent of Spending on Clothes (Beta=.41, $p<.0001$) as shown in Table 16 (a). Communicated Experience and Spending on Clothes were significant antecedents of Purchase Innovative Behavior, and these two variables explained 28 percent of Purchase Innovative Behavior ($R^2=.28$). Therefore, the causal order of the variables, Communicated Experience --> Spending on Clothes --> Purchase Innovative Behavior was

Table 16
Path Coefficients for Purchase Innovative Behavior

Dependent	Independent	Path Coeff.	R^2	Indirect effect	Effect Coeff.
		a) Total			
Spending on Clothes	Communicated Experience	.41****	.16****		.41
Purchase Innovative Behavior	Communicated Experience	.32****		.12	.44
			.28****		
	Spending on Clothes	.30****			.30
		b) Male			(N=203)
Spending on Clothes	Communicated Experience	.26****	.07****		.26
Purchase Innovative Behavior	Communicated Experience	.14*		.12	.26
			.26****		
	Spending on Clothes	.45****			.45
		c) Female			(N=312)
Spending on Clothes	Communicated Experience	.41****	.17****		.41
Purchase Innovative Behavior	Communicated Experience	.33*		.10	.43
			.23****		
	Spending on Clothes	.24****			.24

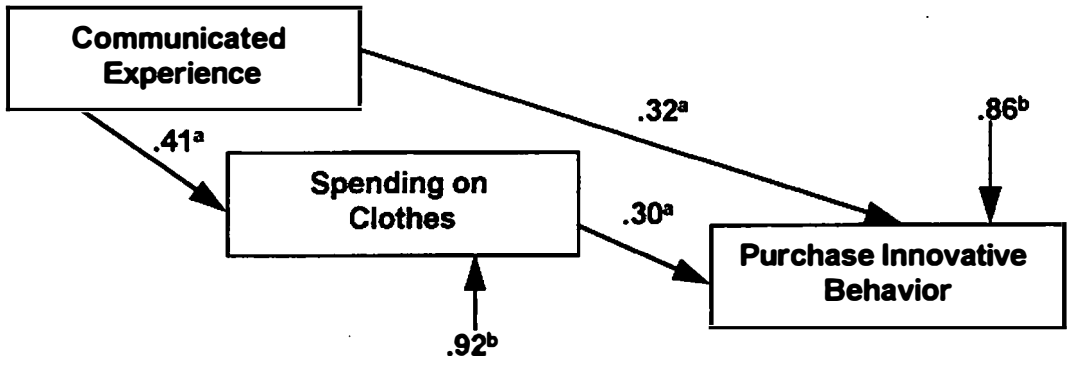
* p<.05
** p<.01
*** p<.001
**** p<.0001

empirically supported. That is, Communicated Experience affected Purchase Innovative Behavior directly and indirectly through Spending on Clothes (indirect effect=.12) as shown in Table 16 (a). Indirect effect was obtained by multiplying the path coefficients for the variables (.12=(.30)(.41)). The causal relationships between the variables for Purchase Innovative Behavior are presented in Figure 8 (a).

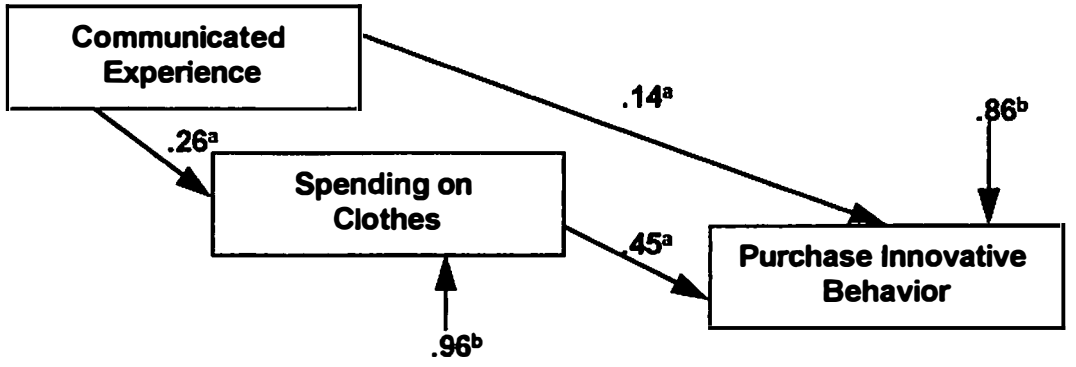
For male respondents, Communicated Experience explained a small portion of Spending on Clothes (Beta=.26, R^2=.07, p<.0001). Spending on Clothes was a stronger antecedent for Purchase Innovative Behavior than Communicated Experience (Beta of Spending on Clothes=.45, p<.0001, Beta of Communicated Experience=.14, p<.05) as shown in Table 16 (b). Nevertheless, the model was empirically supported as presented in Figure 8 (b).

For female respondents, the model was also empirically supported. Communicated Experience had a stronger direct effect on Purchase Innovative Behavior than Spending on Clothes (Beta of Communicated Experience=.33, p<.0001, Beta of Spending on Clothes=.24, p<.0001) as shown in Table 16 (c). The causal relationships between the variables for Purchase Innovative Behavior with female respondents are presented in Figure 8 (c).

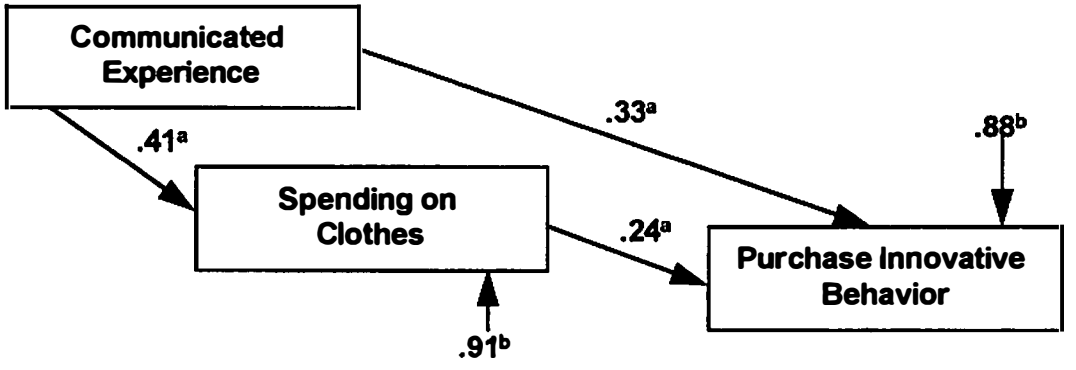
According to the path analysis for Purchase Innovative Behavior, the causal model of Communicated Experience --> Spending on Clothes --> Purchase Innovative Behavior was empirically supported. That is, Communicated Experience affected Spending on Clothes, which directly affected Purchase



a) Overall Path Model



b) Path Model by Male



c) Path Model by Female

Figure 8. Path Model for Purchase Innovative Behavior
[a] Path Coefficient (Beta)
[b] Residual path coefficient

Innovative Behavior. Communicated Experience affected Purchase Innovative Behavior directly and indirectly (through Spending on Clothes). Predictability of both Communicated Experience and Spending on Clothes was not different between male and female respondents. However, for the male college student group, Spending on Clothes was a stronger antecedent of Purchase Innovative Behavior, while Communicated Experience was a stronger antecedent for the female college student group.

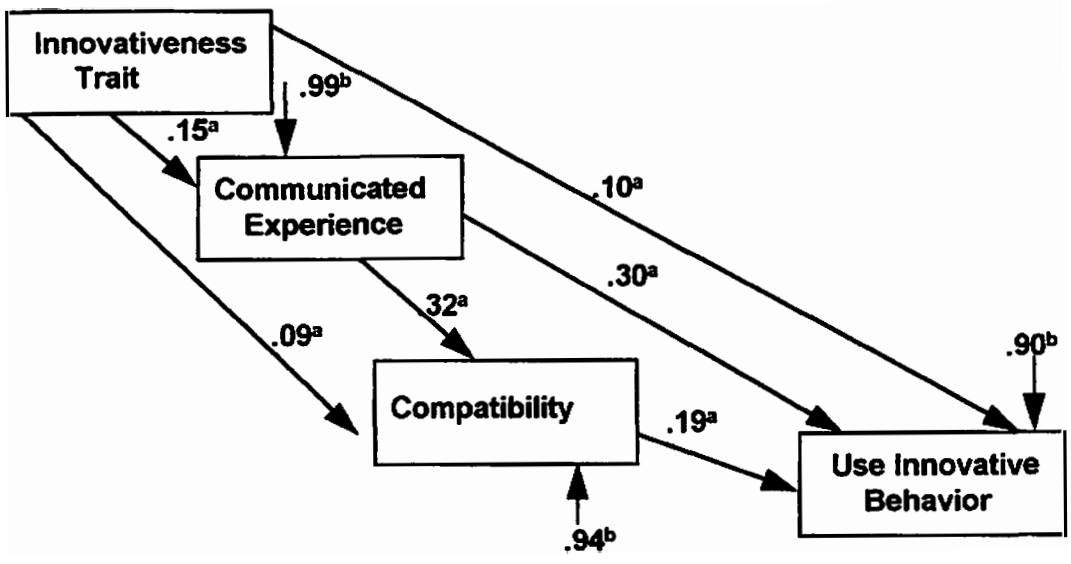
Path analysis for Use Innovative Behavior: The following equations were used.

Communicated Experience = *f* (Innovativeness Trait)

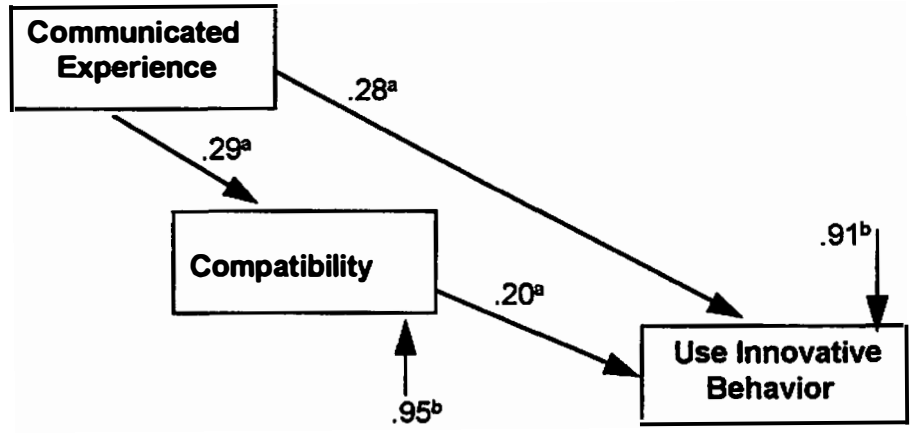
Compatibility = *f* (Innovativeness Trait, Communicated Experience)

Use Innovative Behavior = *f* (Innovativeness Trait, Communicated Experience, Compatibility)

Innovativeness Trait was a significant antecedent of Communicated Experience, but it had little effect (R^2=.02, p<.001). Innovativeness Trait and Communicated Experience both were antecedents of Compatibility with 12 percent of predictability (R^2=.12, p<.0001), but Communicated Experience was a stronger antecedent of Compatibility than Innovativeness Trait (Beta of Communicated Experience=.32, p<.0001, Beta of Innovativeness Trait=.09, p<.05). Innovativeness Trait, Communicated Experience, and Compatibility were antecedents of Use Innovative Behavior (R^2=.19, p<.0001). Therefore, the causal model of Figure 9(a) was empirically supported. Communicated Experience was the strongest antecedent of Use Innovative Behavior with the direct and indirect effects (Beta=.30, Effect coeff.=.36). Theses results are shown in Table 17 (a).

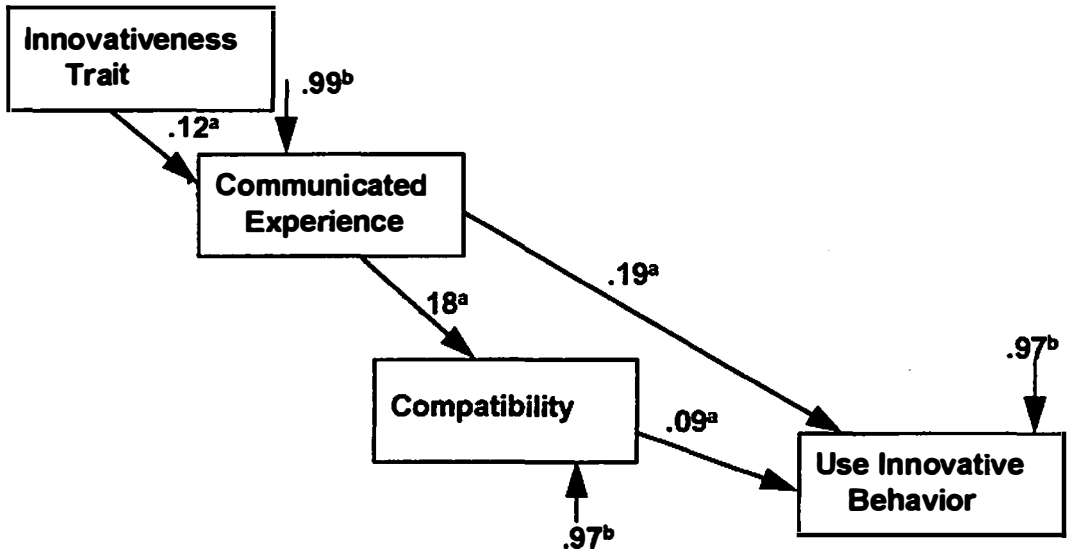


a) Overall Path Model



b) Path Model by Male

Figure 9. Path Model for Use Innovative Behavior
[a] Path coefficient (Beta)
[b] Residual path coefficient



c) Path Model by Female

Figure 9. (Continued.)

Table 17
Path Coefficients for Use Innovative Behavior

Dependent	Independent	Path Coeff.	R^2	Indirect effect	Effect Coeff.
		a) Total			
Communicated Experience	Innovativeness Trait	.15***	.02***		.15
Compatibility	Innovativeness Trait	.09*		.05	.14
			.12****		
	Communicated Experience	.32****			.32
Use Innovative Behavior	Innovativeness Trait	.10*		.06	.16
			.19****		
	Communicated Experience	.30****		.06	.36
		.19****			.19
	Compatibility				
		b) Male			(N=217)
Communicated Experience	Innovativeness Trait	.08	.01		.08
Compatibility	Innovativeness Trait	.05		.02	.07
			.09****		
	Communicated Experience	.29****			.29
Use Innovative Behavior	Innovativeness Trait	.10		.02	.12
			.17****		
	Communicated Experience	.28****		.06	.34
		.20**			.20
	Compatibility				

Table 17 (Continued)

Dependent	Independent	Path Coeff.	R^2	Indirect effect	Effect Coeff.
		c)Female			(N=322)
Communicated Experience	Innovativeness Trait	.12*	.01*		.12
Compatibility	Innovativeness Trait	.10		.02	.12
			.05***		
	Communicated Experience	.18**			.18
Use Innovative Behavior	Innovativeness Trait	.08		.02	.10
			.06****		
	Communicated Experience	.19***		.02	.21
	Compatibility	.09*			.09

* p<.05
** p<.01
*** p<.001
**** p<.0001

For male respondents, Innovativeness Trait was not a significant antecedent either of Communicated Experience, Compatibility, or Use Innovative Behavior. Communicated Experience was a significant antecedent of Compatibility. Though Communicated Experience and Compatibility affected Use Innovative Behavior, Communicated Experience was a stronger predictor for Use Innovative Behavior (effect coefficient=.34) as shown in Table 17 (b). The causal model supported empirically by male is shown in Figure 9(b).

For female respondents, an equation of three variables, Innovativeness Trait, Communicated Experience, and Compatibility explained little of Use Innovative Behavior (R^2=.06, p<.0001), while it explained 17 percent for the male group. Table 17 (c) indicates that Communicated Experience was the strongest antecedent of Use Innovative Behavior (effect coefficient=.21), but it had a relatively lower effect within the female group. The empirically supported causal relationships between the variables for Use Innovative Behavior with female respondents are presented in Figure 9(c).

According to the path analysis for Use Innovative Behavior, the causal model of Innovativeness Trait --> Communicated Experience --> Compatibility --> Use Innovative Behavior was not empirically supported by Gender. Innovativeness Trait had no direct effect on Use Innovative Behavior but indirect effect through Communicated Experience for the female group. Communicated Experience was the best viable antecedent for Use Innovative Behavior for both groups with direct and indirect effects, but this model explained little of Use Innovative Behavior for

the female college student group.

While the path model for Purchase Innovative Behavior was stable, the Use Innovative Behavior model was not stable by Gender. It indicated that Gender affected Use Innovative Behavior more than Purchase Innovative Behavior. Use Innovative Behavior seemed to be a function of more complex interactions between Innovativeness Trait and intervening variables than purchase innovative behavior, which was mostly explained by amount of spending. Considering use innovativeness as post-adoption usage behavior, some additional variables including post-adoption intervening variables needed to be incorporated to the model, especially to predict Use Innovative Behavior for the female group.

Hypothesis 2

H2: Purchase Innovative Behavior and Use Innovative Behavior are differently affected by Innovativeness Trait, Product Interest, Communicated Experience, Perceived Innovative Attributes (Relative Advantage, Compatibility and Perceived Risk), and Demographic Characteristics (Gender, Employment Status, Family Income and Spending on Clothes).

The purpose of Hypothesis 2 was to investigate the effects of the independent variables on Purchase Innovative Behavior and Use Innovative Behavior, simultaneously. Purchase Innovative Behavior and Use Innovative Behavior were expected to correlate with each other. Moreover, it was necessary

to understand the integrated relationships between all the variables based on the relationship between the two dependent variables, Purchase Innovative Behavior and Use Innovative Behavior, and to understand the relationships between the independent variables and each dependent variable.

The following steps were used for the Hypothesis 2 test. The Pearson correlation coefficient was estimated to investigate the relationship between Purchase Innovative Behavior and Use Innovative Behavior. Second, four subgroups were classified based on the scores of Purchase Innovative Behavior and Use Innovative Behavior. Based on the median score, each of Purchase Innovative Behavior and Use Innovative Behavior was divided into two groups of high and low scores. By cross-classification, four groups were resulted. High PI-UI group was the innovative group in both purchase and use. High PI-Low UI group was the innovative group in purchase but not in use. Low PI-High UI group was the innovative group in use but not in purchase. Low PI-UI group was the non-innovative group in both purchase and use.

Frequencies of the four groups based on the median scores (16 for Purchase Innovative Behavior and 25 for Use Innovative Behavior) are presented in Table 18. Purchase Innovative Behavior and Use Innovative Behavior were correlated with each other ($r=.32$, $p<.01$).

Multiple discriminant analysis by the stepwise method was used to investigate if the four groups differed significantly from one another. If they differed, the nature of their differences (Tatsuoka 1970, p.1) and the distinguishing

Table 18
Four groups of Innovative Behavior

Groups	Frequency	Percent of Total
High PI-UI group	162	31.5
High PI-Low UI group	85	16.5
Low PI-High UI group	94	18.3
Low PI-UI group	173	33.7
	N=514	100.0

characteristics of the four groups were investigated. The eight independent variables retained from the earlier correlation results were used for discriminant analysis. Group means and standard deviations are presented in Table B-3.

To know which independent variables were important for group separation and to identify "good" predictor variables, stepwise discriminant analysis was used. The principles were the same as in stepwise multiple regression, but the actual criteria for variable selection were different. At each step, the variable that had the smallest Wilks' lambda for the discriminant function was selected for entry (Norusis 1990, p. 19). All eight variables were included as good predictor variables (Table B-4).

A discriminant function is the ratio of the between-groups sum of squares to within-groups sum of square (Norusis 1990, p. 14). Because there were four groups, three discriminant functions were estimated. As seen at Table 19, Function 3 did not contribute to the group differences ($p>.05$). Function 1 accounted for 78.79 percent of total between groups variability. Function 2 accounted for an additional 17.23 percent. Thus, with two functions, 96.02 percent of total between groups variability was explained.

Table 19 and Figure 10 show group means for the three functions, which is the extent to which the four groups differ with respect to the discriminant functions (Dillon and Goldstein 1984, p.366). Function 1 separated the High PI-UI group and the Low PI-UI group very well, and also separated these two groups from the High PI-Low UI group and the Low PI-High UI group. The High PI-Low

Table 19
Canonical Discriminant Functions

Canonical Discriminant Functions

Function	Eigen Value	% of Variance	Canonical Corr
1	.3606	78.79	.51
2	.0789	17.23	.27
3	.0182	3.98	.13

After Function	Wilks' Lambda	Chisquare	DF
0	.6691	203.74****	24
1	.9103	47.63****	14
2	.9821	9.15	6

Canonical Discriminant Functions Evaluated at Group Means (Group Centroids)

Group	Function 1	Function 2	Function 3
High PI-UI	0.7725	0.0365	-0.0939
High PI-Low UI	0.0026	0.4072	0.2300
LowPI-High UI	-0.0273	-0.5208	0.1344
Low PI-UI	-0.7098	0.0488	-0.0981

**** p<.0001

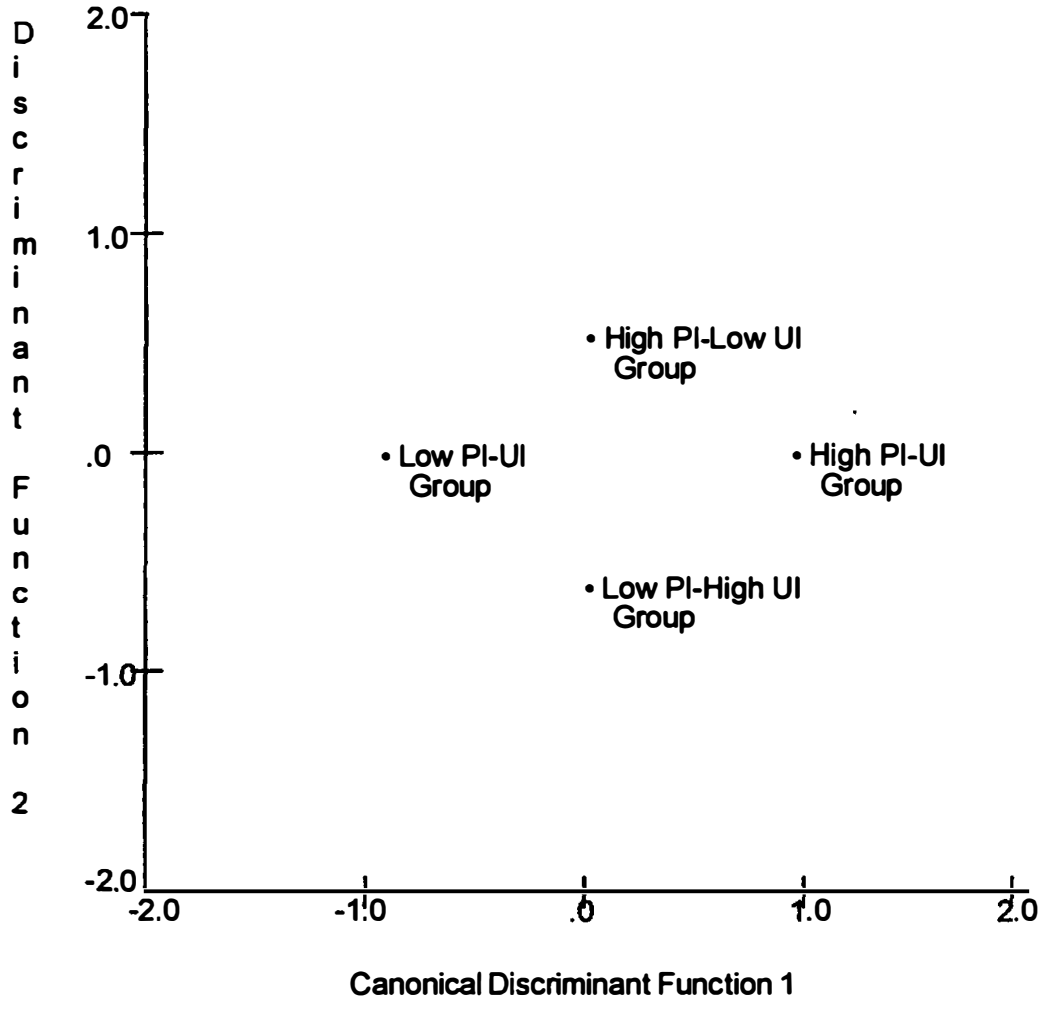


Figure 10. Group Centroid

UI group and the Low PI-High UI group were well separated by Function 2, while these two groups could not be distinguished from Function 1. That is, four groups differed significantly by the two discriminant functions.

Over half of percent (50.6 %) were predicted correctly by the members of High PI-UI group, and 31.8 percent, 44.7 percent, and 57.8 percent were predicted correctly to the members of High PI-Low UI group, Low PI-High UI group, and Low PI-UI group, respectively. The overall percentage of cases classified correctly was 48.83 percent as shown in Table 20.

Communicated Experience, Product Interest, Gender, Compatibility, and Relative Advantage: Socio-psychological were highly loaded to Function 1, while Spending on Clothes and Employment Status were highly loaded to Function 2 as shown in Table 21.

Therefore, H2 was concluded as the follows. The four groups of innovative behavior were significantly different and could be distinguished from each other. The High PI-UI group tended to have high Communicated Experience and Product Interest, to be female, and to have relatively high Compatibility and Relative Advantage: Socio-psychological. The Low PI-UI group tended to have low Communicated Experience and Product Interest, to be male, and to have relatively low Compatibility and Relative Advantage: Socio-psychological. The High PI-Low UI group tended to spend more on clothes and to be unemployed, while the Low PI-High UI group tended to spend less on clothes and to be employed. The characteristics of the groups are presented in Figure 11.

Table 20
Classification Results

Actual Group	No. of cases	Predicted Group Membership			
		G1	G2	G3	G4
High PI-UI (G1)	162	82 (50.6)	24 (14.8)	38 (23.5)	18 (11.1)
High PI-Low UI (G2)	85	17 (20.0)	27 (31.8)	18 (21.2)	23 (27.1)
Low PI-HIgh UI (G3)	94	18 (19.1)	7 (7.4)	42 (44.7)	27 (28.7)
Low PI-UI (G4)	173	15 (8.7)	20 (11.6)	38 (22.0)	100 (57.8)
Percent of "grouped" cases correctly classified: 48.83%					

Note: ( ) is percent

Table 21
Structure Matrix:
Pooled within-groups correlations between discriminating variables and canonical discriminant functions
(Discriminant Loadings)

Variable	Function 1	Function 2	Function 3
Communicated Experience	0.8320*	0.0814	-0.2957
Product Interest	0.6684*	0.1286	0.2093
Gender	0.6465*	-0.2721	0.3140
Compatibility	0.4240*	-0.3010	-0.1571
Relative Adv.: Socio-psycho	0.3594*	0.1406	-0.1703
Spending on Clothes	0.5068	0.7027*	0.0164
Employment Status	-0.2466	0.3498*	0.2835
Innovativeness Trait	0.2351	0.0203	0.6755*

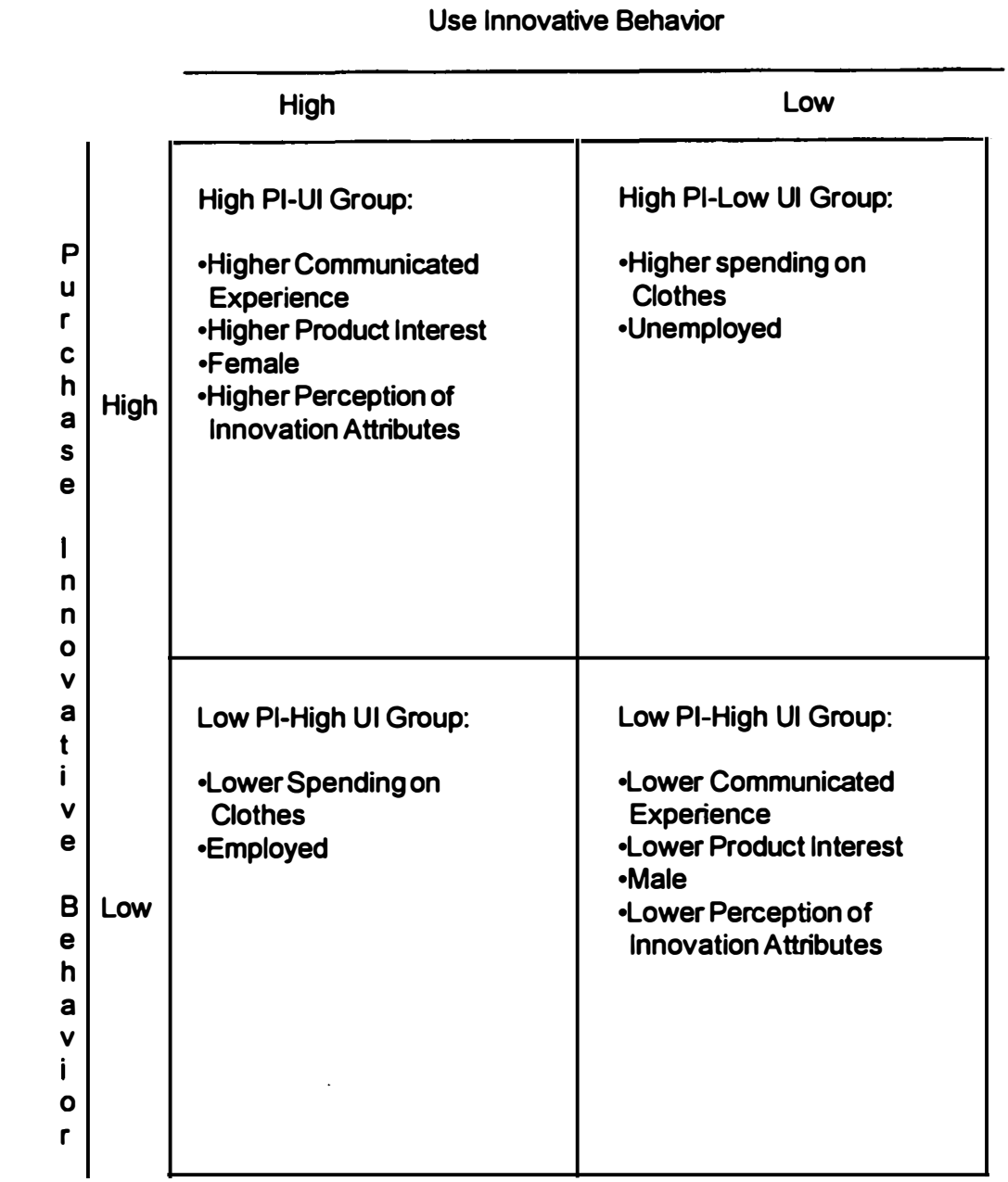


Figure 11. Characteristics of Four Groups of Innovative Behavior

These results indicated that the college student consumers who used more clothing/fashion information sources such as print media, retail store display and personal discussion, who had higher interest in clothing and clothing related behavior, who were female rather than male, and who perceived product attributes (in terms of whether the product was compatible with current life styles and whether it provided the socio/psychological benefits) more importantly tended to belong to an innovative group in purchase and use both, while the college student consumers who had opposite characteristics in these aspects tended to belong to a non-innovative group. The college student consumers who spent more on clothes and who were unemployed tended to belong to an innovative group in purchase but not in use, while the college student consumers who spent less on clothes and who were employed tended to belong to an innovative group in use but not in purchase. The results support Hirschman (1980)'s notion that creative consumers exhibit both innovative behaviors on more occasions.

Hypothesis 3

H3: Purchase Innovative Behavior of the Specific Product (Novelty of Purchase, Time of Purchase and Type of Purchase), Usage Experience and Post-Adoption Evaluation combine to affect Use Innovative Behavior for the Specific Product.

The purpose of Hypothesis 3 was to investigate the effects of Purchase Innovative Behavior and post-purchase variables on Use Innovative Behavior.

The following steps were undertaken for the test of Hypothesis 3. First, categorical variables were regrouped by oneway analysis, and were treated as dummy variables for further analyses. Second, multiple regression analysis was used to investigate the effects of the independent variables on Use Innovative Behavior for the Specific Product. Third, stepwise regression was used to identify the best predictor variables for Use Innovative Behavior in the post-adoption process. For an additional concern, path coefficient was estimated to investigate the causal relationships among the variables selected from the stepwise regression.

Treatment of categorical variables

Novelty of Purchase: It consisted of five categories. Oneway analysis by Novelty of Purchase was used for Usage Experience, Post-Adoption Evaluation, and Use Innovative Behavior for the Specific Product (Table B-5). There were differences in Post-Adoption Evaluation ($F=4.49$, $p<.01$) and Use Innovative Behavior for the Specific Product ($F=3.51$, $p<.01$).

Scheffe's Multiple Range Test was used for these two variables. Respondents who purchased Not New Fashion/Conservative Styles had lower evaluations than respondents who purchased Very New Fashion Styles and Trend-setting/Extremely New Fashion Styles. Respondents who purchased Trend-setting/Extremely New Fashion Styles had significantly higher Use Innovative Behavior than respondents who purchased Not New Fashion/Conservative Styles.

Therefore, Novelty of Purchase was regrouped as two categories, which showed differences in either of Usage Experience, Post-Adoption Evaluation, or Use Innovative Behavior for the Specific Product. Very Conservative/Traditional Styles, Not New Fashion/Conservative Styles, and Fairly New Fashion Styles belonged to Group 1. Very New Fashion Styles and Trend-setting/Extremely New Fashion Styles belonged to Group 2. Group 1 was recoded as "0", and group 2 as "1".

Type of Purchase: It consisted of five categories. Oneway analysis by Type of Purchase was used for Usage Experience, Post-Adoption Evaluation, and Use Innovative Behavior for the Specific Product (Table B-6). There were differences in Usage Experience ($F=24.12$, $p<.0001$). Scheffe's test indicated that respondents who purchased Dress/Suit/Two-piece Outfits had lower Usage Experience than all other types of purchasers.

There were differences in Post-Adoption Evaluation ($F=6.50$, $p<.0001$). Scheffe's test indicated that respondents who purchased Shirt/Blouse/T-shirt/Sweaters had lower Evaluation than respondents who purchased Jacket/Blazer/Vest/Coats and Dress/Suit/Two-piece Outfits. Respondents who purchased Pants/Shorts/Skirts had lower Evaluation than respondents who purchased Jacket/Blazer/Vest/Coats.

There were differences in Use Innovative Behavior for the Specific Product ($F=9.50$, $p<.0001$). Respondents who purchased Dress/Suit/Two-piece Outfits showed lower Use Innovative Behavior for the Specific Product than any other

groups.

Categories that showed differences in either of Usage Experience, Post-Adoption Evaluation, and Use Innovative Behavior for the Specific Product were retained. Category 5 (Other) was dropped for further analysis. The regrouped categories were: Type 1) Jacket/Blazer/Vest/Coat types; Type 2) Dress/Suit/Two-piece Outfit types; and Type 3) Shirt/Blouse/T-shirt/Sweater types and Pants/Shorts/Skirt types. The reference group for dummy variables was Type 3.

Multiple regression

Use Innovative Behavior was a function of the following variables.

Use Innovative Behavior for the Specific Product = *f* (Novelty of Purchase, Time of Purchase, Type 1 ("1" Jacket/Blazer/Vest/Coat, "0" others), Type 2 ("1" Dress/Suit/Two-piece Outfit, "0" others), Usage Experience, Post-Adoption Evaluation).

As seen in Table 22, Usage Experience and Novelty of Purchase significantly affected Use Innovative Behavior for the Specific Product (Beta=.29, $p<.0001$, Beta=.16, $p<.001$, respectively). Type 1 did not significantly affect Use Innovative Behavior, while Type 2 had a negative effect on Use Innovative Behavior (Beta=-.14, $p<.01$). It indicated that the respondents who selected Dress/Suit/Two-piece Outfits had lower Use Innovative Behavior than the selectors of Shirt/Blouse/T-shirt/Sweaters or Pants/Shorts/Skirts. Post-Adoption Evaluation and Time of Adoption did not significantly affect Use Innovative Behavior for the Specific Product.

Table 22
Multiple Regression for Use Innovative Behavior for the Specific Product

Analysis of Variance

	DF	Sum of Squares	Mean Square	F	R^2
Regression	6	6040.67	1006.78	16.91****	.16
Residual	514	30607.02	59.55		

Variables in the Equation

Variable	B	Beta	T
Novelty of Purchase	2.57	.15	3.55***
Time of Purchase	-.18	-.07	-1.60
Type 1	1.62	.07	1.69
Type 2	-2.73	-.14	-3.10**
Usage Experience	.95	.29	6.74****
Post-Adoption Evaluation	.04	.02	.47

* p<.05
** p<.01
*** p<.001
**** p<.0001

Stepwise regression

According to the stepwise regression, Usage Experience, Novelty of Purchase, and Type of Purchase were the best predictors of Use Innovative Behavior for the Specific Product. These variables explained 16 percent of Use Innovative Behavior in the post-adoption process (R^2=.16, p<.0001), while the full model explained the same 16 percent (R^2=.16, p<.0001). Usage Experience had the strongest effect (Beta=.29, p<.0001). Novelty of Purchase had a moderate effect (Beta=.15, p<.001), which indicated that Trend-Setting or Very New Fashion Styles rather than Fairly New Fashion or Conservative Styles affected higher Use Innovative Behavior for the Specific Product.

Also, Type of Purchase affected Use Innovative Behavior. Type 2 had a relatively negative effect on Use Innovative Behavior (Beta=-.13, p<.01) while Type 1 had a relatively weak effect (Beta=.09, p<.05) as shown in Table 23. That is, the respondents who selected Dress/Suit/Two-piece Outfit types showed significantly lower Use Innovative Behavior than those who selected Shirt/Blouse/T-shirt/Sweater or Pants/Shorts/Skirt types. The respondents who selected Jacket/Blazer/Vest/Coat types showed a little higher Use Innovative Behavior than those who selected Shirt/Blouse/T-shirt/Sweater or Pants/Shorts/Skirt types, though the difference was slight.

Therefore, the Hypothesis 3 test results indicated that how often the respondents had worn the new clothing item since its purchase best predicted Use Innovative Behavior for the Specific Product. The respondents who had worn the

Table 23
Stepwise Regression for Use Innovative Behavior for the Specific Product

Analysis of Variance

	DF	Sum of Squares	Mean Square	F	R^2
Regression	4	5879.33	1469.83	24.65****	.16
Residual	516	30768.36	59.63		

Variables in the Equation

Variable	B	Beta	T
Usage Experience	.96	.29	6.84****
Novelty of Purchase	2.59	.15	3.61***
Type 2	-2.50	-.13	-2.89**
Type 1	2.01	.09	2.18*

* p<.05
** p<.01
*** p<.001
**** p<.0001

new clothing item more frequently, and who purchased a Trend-setting or Very New Fashion Style rather than a Fairly New Fashion or Conservative Style tended to use the clothing in more innovative ways. The respondents who purchased Jacket/Blazer/Vest/Coat types showed slightly higher innovative use of those clothing types than those who purchased Shirt/Blouse/T-shirt/sweater or Pants/Shorts/Skirt types. Those who purchased Dress/Suit/Two-piece outfit types showed lower innovative use behavior of that clothing than those who purchased Shirt/Blouse/T-shirt/Sweater or Pants/Shorts/Skirt types.

The results support that the effects of Purchase Innovative Behavior and Usage Experience on Use Innovative Behavior. It is consistent with the earlier conceptual and empirical research (Price and Ridgway 1984; Ram and Jung 1989; Anderson and Ortinau 1988) that indicate the relationships of Purchase Innovative Behavior (earlier adoption) and product usage behaviors, and Use Innovative Behavior and product usage behaviors. Also Usage Experience had the strongest influence on Use Innovative Behavior as Hall et al. (1977) contended. These effects could be more clearly observed by path analysis.

Path analysis

The following equations were used to see the causal relationships among the variables.

Usage Experience = *f* (Novelty of Purchase, Type 1, Type 2)

Use Innovative Behavior for the Specific Product = *f* (Novelty of Purchase, Type 1 ("1" Jacket/Blazer/Vest/Coat, "0" others), Type 2 ("1" Dress/Suit/Two-piece Outfit, "0" others), Usage Experience)

Novelty of Purchase, Type 1, and Type 2 explained 12 percent of Usage Experience (R^2=.12, p<.0001) as shown in Table 24. Novelty of Purchase did not significantly affect Usage Experience but Type of Purchase did. Dress/Suit/Two-piece Outfit types showed significantly lower Usage Experience than Shirt/Blouse/T-shirt/Sweater or Pants/Shorts/Skirt types (Beta=-.36, p<.0001). Jacket/Blazer/Vest/Coat types also showed lower Usage Experience (Usage Frequency) than Shirt/Blouse/T-shirt/Sweater or Pants/Shorts/Skirt types, though the difference was not very large (Beta=-.11, p<.05). These indicated that whether the clothing item was a fashionable style or conservative style did not affect usage experience but type of product did. The college student respondents wore Shirt/Blouse/T-shirt/Sweater or Pants/Shorts/Skirt types more frequently than other types of clothing styles, and Dress/Suit/Two-piece Outfit types less frequently.

While Novelty of Purchase only directly affected Use Innovative Behavior, Type of Purchase affected Use Innovative Behavior directly and indirectly through Usage Experience. That is, the respondents who selected the Dress/Suit/Two-piece Outfit types of clothing showed lower Usage Experience (Usage Frequency), and in turn, their Use Innovative Behavior was much lower than those who selected Shirt/Blouse/T-shirt/Sweater or Pants/Shorts/Skirt types. That is, lower Use Innovative Behavior of college student consumers who selected Dress/Suit/Two-piece Outfit types was partially due to lower Usage Experience.

The respondents who selected Jacket/Blazer/Vest/Coat types had a little lower Usage Experience, but the effect on Use Innovative Behavior was not very

Table 24
Path Coefficients for Use Innovative Behavior for the Specific Product

(N=539)

Dependent	Independent	Path Coeff.	R^2	Indirect effect	Effect Coeff.
Usage Experience	Novelty of Purchase	-.03			
	Type 1	-.11*	.12****		
	Type 2	-.36****			
Use Innovative Behavior for the specific product	Novelty of Purchase	.15***			.15
	Type 1	.09*	.16****	-.03	.06
	Type 2	-.13**		-.10	-.23
	Usage Experience	.29****			.29

* p<.05
** p<.01
*** p<.001
**** p<.0001

different from those who selected Shirt/Blouse/T-shirt/Sweater or Pants/Shorts/Skirt types. Theses results indicated that college student groups were more involved in Jacket/Blazer/Vest/Coat types. Even though they did not wear those types more frequently than Shirt/Blouse/T-shirt/Sweater or Pants/Shorts/Skirt types, they were more concerned with new and various ways in using these types.

Therefore, considering the direct and indirect effects, Usage Experience had the strongest positive effect on Usage Innovative Behavior for the Specific Product. However, Dress/Suit/Two-piece Outfit types had a negative effect on Usage Experience, and in turn, a more negative total effect on Usage Innovative Behavior. The relationships among the variables are illustrated in Figure 12.

Hypothesis 4

H4: Purchase Innovative Behavior and Use Innovative Behavior affect Interpersonal Influence.

Multiple regression analysis was used for the test of Hypothesis 4 as shown in Table 25. Both Purchase Innovative Behavior and Use Innovative Behavior affected Interpersonal Influence. Magnitudes in the effects of these two variables were similar (Beta of Purchase Innovative Behavior = .29, $p<.0001$, and Beta of Use Innovative Behavior = .31, $p<.0001$), and these two variables explained 24 percent of Interpersonal Influence.

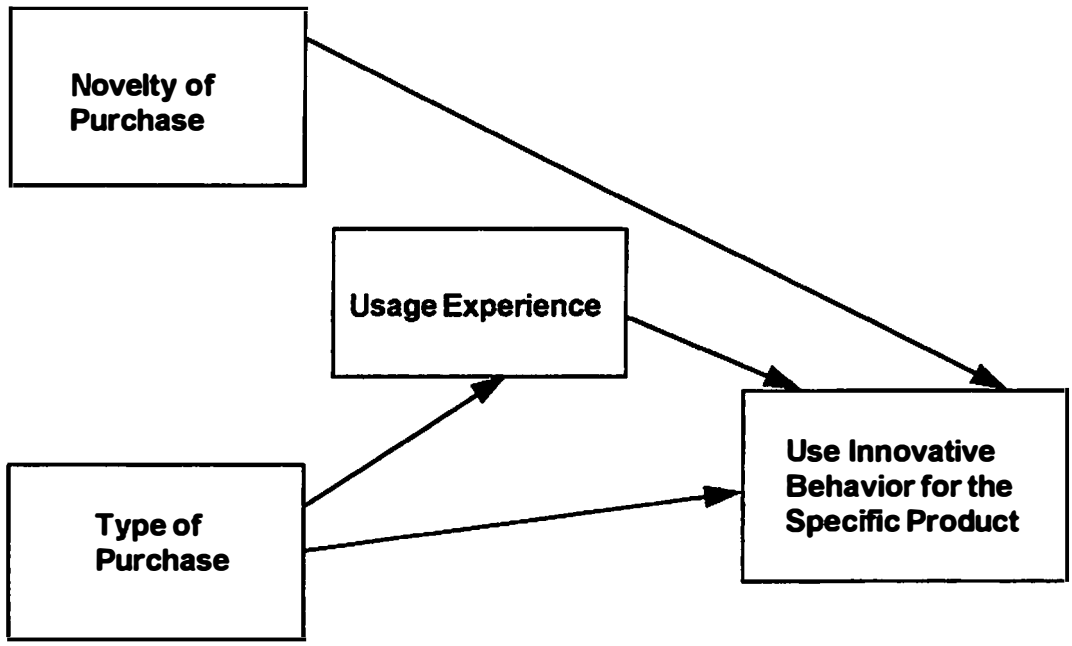


Figure 12. Relationships of Post-Adoption Variables

Table 25
Multiple Regression for Interpersonal Influence

Analysis of Variance

	DF	Sum of Squares	Mean Square	F	R^2
Regression	2	2251.84	1125.92	80.39****	.24
Residual	511	7156.72	14.00		

Variables in the Equation

Variable	B	Beta	T
Use Innovative Behavior	.20	.31	7.69****
Purchase Innovative Behavior	.07	.29	7.05**

* p<.05
** p<.01
*** p<.001
**** p<.0001

It indicated that the respondents who purchased more new/fashionable clothes and who used the clothes in more innovative ways tended to exert personal influence by giving information and advice about new products to others. The results indicated that Use Innovative Behavior was an important consumer behavior since it provided a legitimate influence on other adopters by giving positive or negative information and advice, which could stimulate or slow the rate of diffusion.

The Causes and Effects of Use Innovative Behavior: Empirical Model

To confirm the effects of the variables in the purchase and post-purchase processes on Use Innovative Behavior for the Specific Product, stepwise multiple regression was used. The independent variables on purchase process were selected when they had significant effects on either of Purchase Innovative Behavior or Use Innovative Behavior by the earlier stepwise regression analyses. The independent variables on post-purchase process were selected when they had significant effects on Use Innovative Behavior for the Specific Product by the earlier stepwise regression analysis. The selected independent variables are presented in Table 26.

According to the stepwise regression result, Usage Experience, Communicated Experience, Type 2, Compatibility, Innovativeness Trait, and Novelty of Purchase affected Use Innovative Behavior for the Specific Product with

Table 26
Independent Variables for Use Innovative Behavior

Purchase Process	Post-purchase Process
Innovativeness Trait	Purchase Innovative Behavior
Communicated Experience	Novelty of Purchase
Perceived Innovation Attributes	Type of Purchase
Compatibility	(Type 1, Type 2)
Demographic Characteristics	Usage Experience
Gender	
Spending on Clothes	

the predictability of 22 percent (R^2=.22). Usage Experience was the best predictor of Use Innovative Behavior (Beta=.31, p<.0001). Dress/Suit/Two-piece Outfits affected lower Use Innovative Behavior than Shirt/Blouse/T-shirt/Sweater or Pants/Shorts/Skirt types (Beta=-.18, p<.0001). Communicated Experience (Beta=.15, p<.001), Compatibility (Beta=.12, p<.01), and Innovativeness Trait (Beat=.11, p<.01) also slightly affected Use Innovative Behavior. Trend-setting or Very New Fashion Style rather than Fairly New Fashion or Conservative Style slightly affected Use Innovative Behavior for the Specific Product (Beta=.08, p<.05). See Table 27.

Therefore, the more frequently the respondents had worn the new clothing item since its purchase, the more innovative use behavior of that clothing that resulted. However, Use Innovative Behavior differed by clothing types the respondents purchased. The respondents who purchased Dress/Suit/Two-piece Outfit types rather than Shirt/Blouse/T-shirt/Sweater or Pants/Shorts/Skirt types showed lower innovative use. The respondents who used more clothing/fashion information sources such as print media, store display, and personal discussion, who perceived the attribute of the new clothing (whether it was compatible with existing life styles related to clothing behavior) more importantly, and who had more willingness to try something new in different consumption areas tended to use the clothing in more innovative ways. The respondents who purchased a Trend-setting or Very New Fashion Style rather than a Fairly New Fashion or Conservative Style also used that clothing in innovative ways.

Table 27
Stepwise Regression for Use Innovative Behavior
for the Specific Product (Total effects)

Analysis of Variance

	DF	Sum of Squares	Mean Square	F	R^2
Regression	6	7881.08	1313.51	23.47****	.22
Residual	514	28766.61	55.97		

Variables in the Equation

Variable	B	Beta	T
Usage Experience	1.00	.31	7.35****
Communicated Experience	.46	.15	3.40***
Type 2	-3.39	-.18	-4.23****
Compatibility	.30	.12	2.88**
Innovativeness Trait	.07	.11	2.82**
Novelty of Purchase	1.48	.08	2.04*

* p<.05
** p<.01
*** p<.001
**** p<.0001

Based on the findings, an empirical model of the causes and effect of Use Innovative Behavior is suggested as shown in Figure 13. That is, Use Innovative Behavior is a function of the direct and indirect effects of Gender, Innovativeness Trait, Communicated Experience, and Perceived Innovation Attributes (Compatibility), while Purchase Innovative Behavior is a function of the direct and indirect effects of Gender, Communicated Experience, and Spending on Clothes. Use Innovative Behavior is also directly and indirectly affected by Purchase Innovative Behavior for a Specific Product, Type of Product, and Usage Experience in the post-adoption process. Post-adoption variables has stronger influences on Use Innovative Behavior for the Specific Product than pre-adoption variables.

Therefore, Gender, Innovativeness Trait, Communicated Experience, Perceived Innovation Attributes (Compatibility), Purchase Innovative Behavior for a Specific Product (Novelty of Product), Type of Product, and Usage Experience are the empirically supported predictor variables for Use Innovative Behavior, and these variables affect Use Innovative Behavior directly and indirectly. The effect of Use Innovative Behavior on diffusion process (Interpersonal Influence) is also empirically supported.

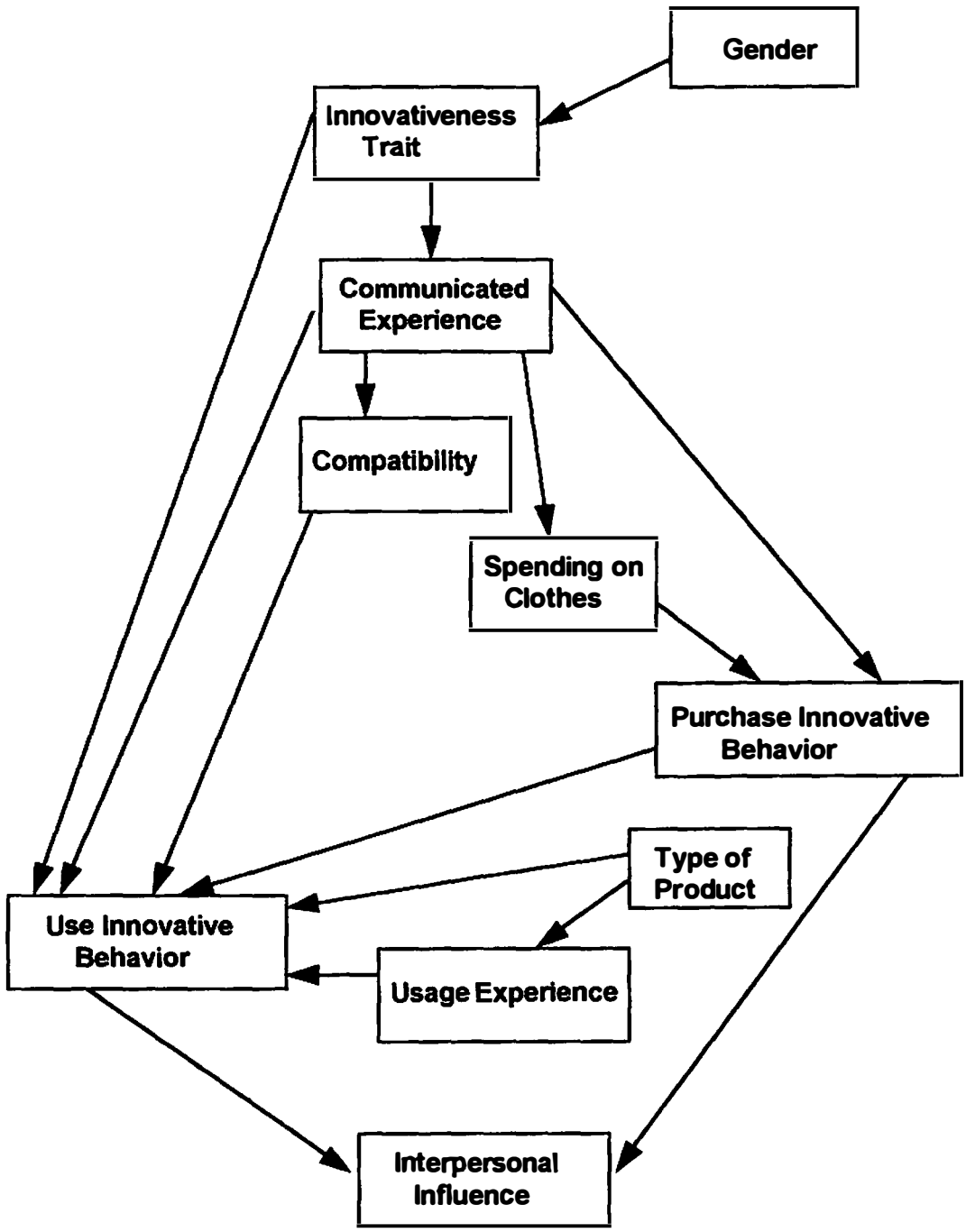


Figure 13. The Causes and Effect of Use Innovative Behavior: Empirical Model

CHAPTER V

SUMMARY AND CONCLUSIONS

Summary

While past innovativeness research had focused on the initial purchase/non-purchase of a new product and ignored the post-adoption usage process, this study was interested in innovative product usage behavior. Innovative use related to satisfaction influences consumer decision processes such as future adoption/purchase behavior and word-of-mouth. Further, innovative use by consumers may provide a source of new innovation by marketers. Therefore, usage behavior will eventually influence the rate of diffusion, and better understanding of use innovativeness can help marketers better control the diffusion process by encouraging and discouraging specific usage behavior. It will also help them in new product planning strategy as well as contributing to the theories of consumer innovative behavior and post-adoption usage behavior. Especially for symbolic products like clothing, its effect on diffusion is conspicuous since usage behaviors related to those products are easily observable and easily diffused.

The concept of use innovativeness was introduced by Hirschman (1980) within the innovativeness framework. Past research has investigated this behavior with consumer durables as a post-adoption usage behavior but attempts to conceptualize have not been tried and past research provides little information on

this conceptualization.

The objective of this study was to empirically conceptualize use innovativeness in terms of whether it was a viable concept in consumer behavior to be developed as an independent construct. It was based on the theoretical framework of innovative behavior and post-adoption usage behavior.

Based on the innovativeness framework that had a well-established research tradition, this study attempted to separate use and purchase in innovative behavior and to compare the two behaviors. Innovative behavior was assumed to be an actualized interplay of the innovativeness trait and some intervening variables, and use innovative behavior was assumed to be one of the actualized innovative behaviors.

As the first purpose, the study reinvestigated the interacted effects of the selected predictor variables including the innovativeness trait and intervening variables such as product interest, communicated experience, perceived innovation attributes, and some demographic characteristics of purchase innovative behavior. These effects were compared with those of use innovative behavior in order to examine whether these predictor variables also could explain use innovative behavior. Second, the study attempted to determine the factors that could distinguish the two innovative behaviors by investigating differences in the consumer innovative groups classified based on purchase innovative behavior and use innovative behavior and by characterizing the nature of each group.

Further this study incorporated post-adoption usage behavior in order to understand the relationship between use and purchase in innovative behavior and to extend the understanding of use innovative behavior to the product usage process. Purchase innovative behavior was assumed to affect use innovative behavior with interactions of post-adoption variables. Thus, the third purpose was to examine the relationship between the two innovative behaviors by investigating the interacted effects of purchase innovative behavior for a specific product and the post-adoption intervening variables including usage experience and post-adoption evaluation on use innovative behavior for the specific product.

Use innovative behavior was expected to affect the diffusion process. The final purpose was to examine the effect of use innovative behavior on the diffusion process. Therefore, the basic approach of this study in conceptualizing use innovative behavior was to investigate the causes and effects of this behavior on the diffusion process and to identify the best predictor variables of use innovative behavior over the adoption and post-adoption processes.

This study used the clothing product for the empirical test since clothing was judged to be a product category where use innovative behavior was easily observed and since clothing was a symbolic product where the concept could be extended beyond consumer durable products. Survey by the self-administrated questionnaire was used for data collection. All the measurement scales were developed or arranged especially for the clothing product through several steps of the pretest. College students of the University of Tennessee, Knoxville

participated in the survey by cluster sampling method; 539 responses were used for data analysis.

Reliability of the final scales was satisfactory (above .80). The perceived innovation attributes scale was divided into four factors including relative advantage in functional aspects, relative advantage in socio-psychological aspects, compatibility, and perceived risk. The findings are summarized in the following paragraphs.

First, the interactions of the innovativeness trait and the intervening variables affected the two innovative behaviors and the effects on the two behaviors differed. Communicated experience and gender were the best predictors for both purchase and use innovative behaviors. Financial resources (spending on clothes) predicted purchase innovative behavior better while the perception of product attributes, especially compatibility, and the innovativeness trait predicted use innovative behavior better.

A path model of Innovative Behavior was tested by gender separately. The findings empirically supported the casual relationships among the variables. Considering the direct and indirect effects, spending on clothes better explained purchase innovative behavior for the male group, while communicated experience better explained it for the female group. For both female and male groups, communicated experience had the major total (direct and indirect) effect on use innovative behavior.

Second, the college student consumer groups classified based on purchase and use innovative behaviors differed significantly from one another. College student consumers who were engaged in high communicated experience and product interest, who were female rather than male, and who perceived innovation attributes more importantly (especially in compatibility and relative advantage in socio-psychological aspects) tended to belong to the innovative group in purchase and use both, while college student consumers who were low in these aspects belonged to the non-innovative group.

Additionally, spending on clothes and employment status distinguished either of the purchase innovative group or the use innovative group. College student consumers who spent more on clothes and who were unemployed tended to belong to the purchase innovative group (but not use innovative behavior), while lower spenders and employed college students belonged to the use innovative group (but not purchase innovative behavior).

Third, the interactions of purchase innovative behavior for a specific product and the post-adoption intervening variables affected use innovative behavior for the specific product. Usage experience was the best predictor of use innovative behavior in the post-adoption process. Purchase innovative behavior for a specific product (novelty of product) directly affected use innovative behavior for the specific product, but type of the product explained use innovative behavior better. Dress/suit/two-piece outfit types resulted in lower usage experience than separate items such as shirt/T-shirt/sweatshirt/sweater or pants/shorts/skirt types and

affected lower use innovative behavior directly and indirectly. Fourth, use innovative behavior affected the diffusion process to the same extent as purchase innovative behavior.

Based on the findings, this study suggests an empirical model for the causes and effects of use innovative behavior. That is, use innovative behavior is a function of the direct and indirect effects of gender, the innovativeness trait, communicated experience, and perceived innovation attributes (compatibility) in the adoption process, and a function of direct and indirect effects of purchase innovative behavior for a specific product, type of product, and usage experience in the post-adoption process. Therefore, gender, the innovativeness trait, communicated experience, perceived innovation attributes (compatibility), purchase innovative behavior for a specific product (novelty of product), type of product, and usage experience are the empirically supported predictor variables for use innovative behavior, and these variables affect use innovative behavior directly and indirectly. The effect of use innovative behavior on the diffusion process (interpersonal influence) is also empirically supported.

Conclusions

The results of this study support past conceptual and empirical research. That is, purchase innovative behavior and use innovative behavior can be meaningfully differentiated. It supports Price and Ridgway (1982) who imply use

innovativeness as a separate phenomenon. Different factors affect these two innovative behaviors. Purchase innovative behavior is explained by financial resources better while use innovative behavior is a function of more complex interactions of variables. Gender, the innovativeness trait, communicated experience, perceived innovation attributes (compatibility), purchase innovative behavior for a specific product (novelty of product), type of product, and usage experience are the best predictors of use innovative behavior in this study.

Use innovative college student consumers have higher willingness to innovate (innovativeness trait) than high purchase innovative consumers or general college student consumers. They are involved in high information seeking (communicated experience) and they are more competent in product evaluation (perceived innovation attributes). Based on their evaluations, they do not always buy new products but more often utilize their owned products in innovative ways. Therefore, spending on clothes does not predict this behavior. This finding supports Hirschman's (1980) discussion that highly creative consumers do not necessarily adopt/buy a new product but rather engage in more competent new product evaluation.

On the other hand, purchase innovative college student consumers tend to buy new products more often but they are less involved in the evaluation of a new product even though they seek information for the new product. Purchase innovative college student consumers may not need careful evaluation of the new product due to their financial resources which make them able to afford more new

products.

Therefore, use innovative college student consumers tend to be problem-solvers in the decision process and smarter consumers while purchase innovative consumers tend to be heavier buyers or more impulsive buyers. However, these two innovative behaviors are not mutually exclusive behaviors. Highly creative consumers will be more adept at both types of actualized innovative behaviors (Hirschman 1980). The findings that consumers who have high product interest and communicated experience, who are female, and who perceive innovation attributes more importantly tend to exhibit both behaviors (high innovative group) support the Hirschman's notion.

Purchase innovative behavior for a specific new product (novelty of product) tends to affect use innovative behavior. This finding supports past research conceptually (Foxall 1989) and empirically (Anderson and Ortinau 1988). However, whether it is a new product or not, high commitment to the product (usage experience) by use innovative consumers strongly leads to innovative use, (this finding supports Price and Ridgway 1983, 1984; Ram and Jung 1989) and it may provide a source of new product idea. It is expected that creative use as a new innovation idea can be more easily observed from separate items such as shirt/T-shirt/sweater or pants/shorts/skirts types than dress/suit/two-piece types.

Therefore, use innovative behavior can explain problem solving processes better than purchase innovative behavior, which is explained by the dollar amount spent. If use innovative consumers decide to buy a new product they are more

committed to the product (usage experience) that in turn, affect the diffusion process and might create a secondary diffusion process. Use innovative consumers tend to have the same extent of interpersonal influence on the diffusion process as purchase innovative consumers. That is, they are consumer leaders of the diffusion process, from whom followers seek information and advice. Influence by these consumers will be more persuasive since their purchases are based on competent product evaluations, not just on the newness of the product and their uses are based on the commitments to the product.

A consumer oriented marketing strategy has a long history, but in the real world and even in academic research it still focuses on the initial purchase process. Early buying and heavy buying behaviors of new products are important because these behaviors have great influences on the product life cycle by initiating the diffusion process. However, the impact of potential buyers who do not exhibit immediate response in buying new products or who do not exhibit buying behaviors in every case since they are more involved in problem solving process should not be neglected because these consumers have influences on the product life cycle by completing the diffusion process. These consumers are more committed to the product once they purchased it and they have greater influences on the product life cycle once it was initiated. That is, use innovative behavior is a more viable concept than purchase innovative behavior in long-term marketing strategy for marketers who are truly customer oriented.

Therefore, these consumers need to be a target segment in a long-term marketing strategy. This strategy will help marketers understand consumer behavior which can not always be explained by the dollar amount they spend and help marketers build a long-term relationship with their customers.

Limitations and Contributions

A major limitation of the findings is due to the limited sample. College students from one university cannot represent the general consumer population and may not represent the general college student population. Because the sample is limited, the results of this study may not be generalized across the general consumer population.

Reliability of the scales were satisfactory, nevertheless some scales need to be improved and a validity test is needed. The purchase innovative behavior scale needs to be improved. Measuring purchase innovative behavior by asking respondents to report all clothing purchases in the specific time period based on their memories may be biased since it requires too much effort from the respondents. Therefore, assigning new products by the researcher or using a psychometric scale to measure purchase innovative behavior may be more desirable. The use innovative behavior scale needs to be improved in terms of validity. Though the reliability is high and the criterion validity is partially supported, the scale results in one factor instead of the two, novel use and a

variety of uses. More items including functional aspects as well as symbolic aspects are desirable for the perceived risk factor of perceived innovation attributes. Type of product in post-adoption process seems to be one of the important predictors for use innovative behavior. More classified categories can be incorporated. The usage variety factor of usage experience, which was dropped from the reliability test result, can be an important predictor for use innovative behavior if the scale is developed.

Because of inadequate information in the literature, assuming the casual relationships among the variables was difficult. Thus, structural equations were avoided at the first step of the analysis procedure. Nevertheless, the structural equations based on Midgley and Dowling (1978), Hirschman (1980), Antil (1988) and Black (1982) could possibly explain the relationships among the variables better.

Despite these limitations, this study provides valuable information to better understand use innovative behavior for clothing, which has not been studied before. On theoretical perspectives, this study contributes to the conceptualization of consumer innovative behavior. By separating use and purchase in innovative behavior, comparing the two behaviors and further providing the integrated model of innovative behavior, it provides valuable insight for the whole diffusion process as well as the consumer innovative behavior process. In addition, use innovative behavior examined especially for a symbolic product with socio-psychological and functional aspects provides a valuable first step for product usage behavior beyond

consumer durable products.

On practical perspectives, this study contributes to efficient marketing strategies in controlling the product life cycle, building a new product planning and building a long-term relationship with customers. This approach is necessary for the marketer who is truly concerned with customer orientation, because concern for the customer should not end with the purchase of the product.

Implications

Marketing Strategy

Based on the findings of this study, the following implications are recommended for marketing strategy. Reaching use innovative consumers by helping their decision making processes and stimulating their purchases are more promising in marketing strategy than accessing heavy purchasers. These consumers have more willingness to adopt new products (innovativeness trait), and they have information enough to aware the existence of new products (communicated experience). If marketers are able to make these consumers lead to positive evaluation of new products and in turn, to purchase the new products, these consumers tend to be consumer leaders on the diffusion process.

Therefore, persuading these consumers into positive evaluation for the new product may be a major short-term marketing strategy, and it will be achieved from

the promotion strategy. Persuasive message can be targeted to these consumers through print media. Whether the new product is compatible with the current needs, values and life styles (compatibility) is the most important product attribute for this consumer group. The message needs to focus on the product attributes since these consumers already recognize the existence of the new product, and it needs to confirm the product values especially how the new product will complement existing products and how it will be compatible with current values, needs and life styles rather than focusing on the newness of the product.

Merchandising strategy of retailers can help extend the diffusion process by providing various complements for the new product. Especially jacket, blazer or coat types are more related to use innovative behavior even though consumers might not wear them very often. By providing related coordinating items such as shirts, blouses, sweaters, pants or skirts, which are more frequently worn, retailers can extend the product life cycle of a new style of jacket, blazer or coat product or create a secondary product life cycle. Especially when the new product is extremely new/innovative style, store display with coordinated complements which are compatible with consumer's current clothing styles will help to shorten the consumer's decision process in purchasing the new product.

As a more long-term strategy, these consumers can be a target segment, and providing them the product attributes they are looking for can be a first marketing strategy to reach these consumers. Researching the profiles of this consumer group will be needed before the strategy planning stage is implemented.

Future Studies

To support the current findings and develop the concept of use innovative behavior, this study recommends the following aspects for future studies.

First, the study may be extended to a national random sample of students, the general population or some other market segment of interest in order to generalize the findings. Most respondents for this study were unemployed or part-time employed students. Student groups may have less chances to wear dress/suit/two-piece outfit types of clothing, which might be the reason why this type of product results in low usage experience and, in turn, low use innovative behavior. College students tend to wear separate items such as shirt/T-shirt/sweaters or pants/shorts/skirts more often. Therefore, the findings may have different results for different consumer groups such as full-time employees and according to their career status.

Second, the study may have different results for other products. The extension of the study using multiple product categories is recommended in order to generalize the findings across consumer product categories. Comparing of use innovative behavior by product categories such as symbolic products, consumer durable products, or semi-durable products will give interesting insight into consumer innovative behavior and post-adoption usage behavior.

Third, the path model of use innovative behavior in the adoption process had low predictability for the female group. Some additional variables such as

consumer creativity which is a problem-solving capability in consumer behavior (Hirschman 1980), personal psychological and sociological characteristics, and situational factors are needed to be incorporated in order to predict use innovative behavior better. KAI (Kirton's adaptation-innovation inventory) measurement also can be examined to distinguish the two innovative behaviors.

Fourth, this study as an exploratory approach was more concerned with identifying the best predictor variables of use innovative behavior. Based on the empirical model suggested from this study, the causal relationships among the predictor variables can be examined more closely and the model can be generalized.

Fifth, on the analysis procedure, communicated experience can be separately analyzed in terms of print media, retail display, and personal discussion in order to understand information seeking activities of the use innovative consumer group specifically. Female and male consumer groups can be separately analyzed and compared each other.

Sixth, the effects of use innovative behavior can be more extensively investigated beyond interpersonal influence. Especially the effect on future purchase behavior is strongly recommended.

Seventh, a longitudinal approach is more desirable to trace the process of innovative behavior from the innovativeness trait to purchase of the new product, to use of the product, and finally to the effect on future innovative behavior, especially in purchase.

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APPENDICES

APPENDIX A

QUESTIONNAIRE

CLOTHING USAGE BEHAVIOR SURVEY

THE PURPOSE OF THIS SURVEY IS TO BETTER UNDERSTAND HOW YOU USE YOUR CLOTHING. THERE ARE NO RIGHT OR WRONG ANSWERS. PLEASE ANSWER ALL OF THE QUESTIONS BASED ON HOW YOU FEEL. YOUR RESPONSES ARE COMPLETELY ANONYMOUS AND WILL BE USED FOR ONLY THE RESEARCH. IF YOU WISH TO COMMENT ON ANY QUESTIONS OR QUALIFY YOUR ANSWERS, PLEASE FEEL FREE TO USE THE SPACE IN THE MARGINS. YOUR COMMENTS WILL BE READ AND TAKEN INTO ACCOUNT. THANK YOU FOR YOUR HELP.

SECTION I

THE PURPOSE OF THIS SECTION IS TO LEARN ABOUT YOUR PURCHASE AND USAGE BEHAVIOR RELATED TO CLOTHING.

PART A: How willing are you to try something new? Please circle the appropriate number that represents you best for each of the following statements.

1 with very strong unwillingness
2 with strong unwillingness
3 with some unwillingness
4 uncertain
5 with some willingness
6 with strong willingness
7 with very strong willingness

	with very strong unwillingness						with very strong willingness
1. new organization memberships	1	2	3	4	5	6	7
2. new places to shop	1	2	3	4	5	6	7
3. new apparel	1	2	3	4	5	6	7
4. new movies	1	2	3	4	5	6	7
5. new records, tapes and discs	1	2	3	4	5	6	7
6. new books and magazines	1	2	3	4	5	6	7
7. new places to travel	1	2	3	4	5	6	7
8. new foods and drinks	1	2	3	4	5	6	7
9. new restaurants	1	2	3	4	5	6	7
10. new appliances	1	2	3	4	5	6	7
11. new types of transportation	1	2	3	4	5	6	7
12. new sports and leisure activities	1	2	3	4	5	6	7
13. new health and personal care products	1	2	3	4	5	6	7

PART B: For each of the following statements, please circle the number that represents you best.

1 Strongly disagree
2 Disagree
3 Undecided, Uncertain
4 Agree
5 Strongly agree

	Strongly disagree				Strongly agree
14. I enjoy clothes like some people do such things as books, records, and movies.	1	2	3	4	5
15. The subject of clothing is uninteresting to me.	1	2	3	4	5
16. Planning and selecting my wardrobe can be included among my favorite activities.	1	2	3	4	5
17. I would like to be considered one of the best-dressed persons.	1	2	3	4	5
18. I am not too concerned with clothes.	1	2	3	4	5

PART C: For each of the following statements, please circle the number that represents you best.

1 Definitely False
2 False
3 Uncertain
4 True
5 Definitely True

	Definitely False				Definitely True
19. My friends and neighbors often ask my advice about clothing fashion.	1	2	3	4	5
20. My friends come to me more often than I go to them for information about clothes.	1	2	3	4	5
21. I feel that I am generally regarded by my friends and neighbors as a good source of advice about clothing fashions.	1	2	3	4	5
22. I can think of at least two people whom I have told about some clothing fashion in the last six months.	1	2	3	4	5

PART D (23): For each of the following descriptions, please circle the number that best indicates how important each characteristic is for you in deciding to buy or wear new clothes.

1 Very unimportant
2 Somewhat unimportant
3 Uncertain
4 Somewhat important
5 Very important

		Very unimportant				Very important
1)	PRICE	1	2	3	4	5
2)	QUALITY	1	2	3	4	5
3)	FASHION	1	2	3	4	5
4)	PRETTY/GOOD LOOKING	1	2	3	4	5
5)	EASE OF CARE	1	2	3	4	5
6)	COMFORT	1	2	3	4	5
7)	SALE ITEM	1	2	3	4	5
8)	VERSATILITY	1	2	3	4	5

		Very unimportant				Very important
9)	LOOKING ATTRACTIVE	1	2	3	4	5
10)	MATCHING OTHER STYLES I HAVE	1	2	3	4	5
11)	FITTING WITH MY PHYSICAL APPEARANCE	1	2	3	4	5
12)	FITTING WITH MY IMAGE	1	2	3	4	5
13)	APPROPRIATE FOR OCCASION	1	2	3	4	5
14)	SOCIALLY ACCEPTABLE STYLE	1	2	3	4	5
15)	ACCEPTABLE TO OTHERS (FRIENDS, FAMILY, PEERS)	1	2	3	4	5
16)	NOT GETTING BORED WITH IT AFTER BUYING	1	2	3	4	5

PART E (24): Please recall what clothes you have purchased for yourself in the last two months (August and September 1992). On the left-side clothing category blanks, please list ALL THE CLOTHING ITEMS YOU HAVE PURCHASED during that time. On the right side, evaluate how fashionable/new, you think, each of the clothing items you listed was.

1 Very conservative/Traditional style
2 Not new fashion/conservative style
3 Fairly new fashion style
4 Very new fashion style
5 Trend-setting/extremely new fashion style

EX. If you have bought 2 jackets and you think one was a very new fashion style and the other a conservative style:

JACKET/BLAZER/VEST/COAT	Very conservative/ Traditional style				Trend-setting/extremely new fashion style
Jacket 1	1	2	3	(4)	5
Jacket 2	1	(2)	3	4	5

Clothing You have purchased for yourself in the last two months (August and September 1992)	Very conservative/ Traditional style				Trend-setting/extremely new fashion style
SHIRT/BLOUSE/T-SHIRT/SWEATSHIRT/SWEATER					
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
JACKET/BLAZER/VEST/COAT					
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5

_____ (*CONTINUED TO THE NEXT PAGE*)

Clothing you have purchased in the last two months (August and September 1992)	Very conservative/ Traditional style				Trend-setting/extremely new fashion style
PANTS/SHORTS/SKIRTS					
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
DRESS/SUIT/TWO-PIECE OUTFIT					
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
OTHER					
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5

PART F: On average, how many hours per week do you spend doing the following activities? For the following statements, please circle the number that represents you best.

1 Never
2 Less than 1 hour
3 1-1.9 hours
4 2-2.9 hours
5 More than 3 hours

	Never				More than 3 hours
25. Reading fashion related ads or articles in magazines, newspapers, catalogs, etc.	1	2	3	4	5
26. Observing clothing store displays	1	2	3	4	5
27. Talking about clothing/fashion with others such as friends, family, relatives, neighbors, etc.	1	2	3	4	5

PART G: Please recall what clothes you have worn and how you have worn them in the last two seasons (Spring and Summer 1992), and answer the following statements. Please circle the number that represents your behavior best.

1 Never
2 Very seldom
3 Seldom
4 Sometimes
5 Often
6 Very often
7 Always

	Never						Always
28. I have tried new fashion styles by wearing clothes I already had rather than buying new ones.	1	2	3	4	5	6	7
29. I have worn various styles of clothing.	1	2	3	4	5	6	7
30. I have tried new co-ordination ways to match my clothes to new fashion styles.	1	2	3	4	5	6	7
31. I have adapted/changed my old clothes to wear it as a new fashion style.	1	2	3	4	5	6	7
32. I have tried different ways of co-ordination when I wear my clothes.	1	2	3	4	5	6	7
33. I have used existing clothes rather than buying new ones when faced with an occasion in which I need a new outfit.	1	2	3	4	5	6	7
34. I have worn a clothing item for various occasions with different ways of co-ordination.	1	2	3	4	5	6	7

SECTION II

THE PURPOSE OF THIS SECTION IS TO LEARN ABOUT HOW YOU HAVE USED NEW CLOTHING AFTER YOU PURCHASED IT.

Please recall what you have purchased in the last 12 months. Select ONE item that was the most fashionable clothing item that you purchased during the past year.

1. What was that clothing item? Circle the appropriate number.
    1) SHIRTS/BLOUSE/T-SHIRT/SWEATSHIRT/SWEATER
    2) JACKET/BLAZER/VEST/COAT
    3) PANTS/SHORTS/SKIRT
    4) DRESS/SUIT/TWO-PIECE OUTFIT
    5) OTHER (SPECIFY)_____

Please keep this clothing item in mind while answering questions in this section (*p.8-10*).

2. When did you purchase the clothing item? Please specify.
    MONTH: _____ YEAR: _____
3. When you purchased the clothing item, it was: (Circle one number)
    1) VERY CONSERVATIVE/TRADITIONAL STYLE
    2) NOT NEW FASHION/CONSERVATIVE STYLE
    3) FAIRLY NEW FASHION STYLE
    4) VERY NEW FASHION STYLE
    5) TREND-SETTING/EXTREMELY NEW FASHION STYLE
4. Have you owned styles similar to the clothing item? (Circle number)
    1) NEVER
    2) 1 OR 2 STYLES
    3) SEVERAL STYLES
    4) LOTS OF STYLES
5. Have you purchased other clothing or accessory items to match with the clothing item?
    1) NEVER
    2) 1 OR 2 ITEMS
    3) SEVERAL ITEMS
    4) LOTS OF ITEMS

Please keep in mind the clothing item you selected, and circle the number that best represents your behavior for the following questions.

1 Never
2 Less than once a month
3 At least once a month
4 At least 2 or 3 times a month
5 At least once a week
6 At least few times a week
7 Daily

	Never						Daily
6. On an average, how often have you worn the clothing item since you owned it?	1	2	3	4	5	6	7
7. At present, how often do you wear the clothing item?	1	2	3	4	5	6	7
8. In next two seasons (fall and winter), how often do you expect you wear the clothing item?	1	2	3	4	5	6	7

What do you think about the clothing item you selected based on your use experience? Please circle the number that best represents your opinion for the following pairs of words.

9. Unsatisfied	1	2	3	4	5	6	7	Satisfied
10. Dislike	1	2	3	4	5	6	7	Like
11. Negative	1	2	3	4	5	6	7	Positive
12. Unfavorable	1	2	3	4	5	6	7	Favorable

Please keep in mind the clothing item you selected. Think back about how you have worn the clothing item since you owned it, and answer the following statements. Please circle the number that represents your behavior best for each statement.

1 Never
2 Very seldom
3 Seldom
4 Sometimes
5 Often
6 Very often
7 Always

	Never						Always
13. I have tried new fashion styles by wearing the clothing item rather than buying new ones.	1	2	3	4	5	6	7
14. I have worn the clothing item with various co-ordination styles.	1	2	3	4	5	6	7
15. I have tried new co-ordination ways to match the clothing item to new fashion styles.	1	2	3	4	5	6	7
16. I have adapted/changed the clothing item to wear it as a new fashion style.	1	2	3	4	5	6	7
17. I have tried different ways of co-ordination when I wear the clothing item.	1	2	3	4	5	6	7
18. I have used the clothing item rather than buying new ones when faced with an occasion in which I need a new outfit.	1	2	3	4	5	6	7
19. I have worn the clothing item for various occasions with different ways of co-ordination.	1	2	3	4	5	6	7

SECTION III

THE FOLLOWING INFORMATION IS FOR STATISTICAL PURPOSES ONLY. PLEASE ANSWER ALL QUESTIONS.

1. Your Sex. (Circle number of your answer)
   1) MALE
   2) FEMALE
2. What is your major? _____

3. Are you presently: (Circle number)

1) FRESHMAN

2) SOPHOMORE

3) JUNIOR

4) SENIOR

5) OTHER (SPECIFY)_____

4. What is your ethnic origin? (Circle number)

1) WHITE

2) BLACK

3) ASIAN

4) HISPANIC

5) AMERICAN INDIAN

6) OTHER (Specify)_____

5. Are you presently: (Circle number)

1) FULL TIME EMPLOYED

2) PART TIME EMPLOYED

3) UNEMPLOYED

4) OTHER (Specify) _____

6. What was your approximate net family income from all sources, before taxes, in 1991?

1) LESS THAN $ 10,000

2) 10,000 - 19,999

3) 20,000 - 29,999

4) 30,000 - 39,999

5) 40,000 - 49,999

6) 50,000 - 59,999

7) 60,000 - 69,999

8) OVER 70,000

7. How much money did you spend on your wardrobe in 1991? (Circle Number)

1) BELOW $200

2) 200 - 499

3) 500 - 999

4) 1,000 - 1,499

5) 1,500 - 1,999

6) ABOVE 2,000

IS THERE ANYTHING ELSE YOU WOULD LIKE TO TELL US ABOUT THE CLOTHING PRODUCT? PLEASE USE THIS SPACE FOR THAT PURPOSE.

YOUR CONTRIBUTION TO THIS SURVEY IS VERY GREATLY APPRECIATED. IF YOU WOULD LIKE TO HAVE A SUMMARY OF THE RESULTS, PLEASE PRINT YOUR NAME AND ADDRESS WITH "RESULTS REQUESTED". THANK YOU VERY MUCH.

APPENDIX B

TABLES FOR FACTOR ANALYSES, DISCRIMINANT ANALYSIS, AND ONEWAY ANALYSES

Table B-1
Factor Analysis: Perceived Innovation Attributes

Item	Factor loading (rotated)			
	Factor 1	Factor 2	Factor 3	Factor 4
Price		.6676		
Quality			.7074	
Fashion			.6601	
Pretty/Good looking			.7894	
Ease of care		.6895		
Comfort		.6186		
Sale item		.7300		
Versatility		.6670		
Looking attractive			.5194	
Matching other styles	.7319			
Fitting with physical appearance	.7240			
Fitting with image	.7334			
Appropriate for occasion	.6954			
Socially acceptable				.7989
Acceptable to others				.8447
Not getting bored	.5503			
Eigen Value	4.86	2.31	1.27	1.12
% of Variance	30.4	14.4	7.9	7.0

Table B-2
Factor Analysis: Usage Experience

Item	Factor Loading (rotated)	
	Factor 1	Factor 2
Similar style ownership		.7252
Related item purchase		.8014
Past use frequency	.9010	
Present use frequency	.9032	
Futute use frequency	.5521	
Eigen Value	2.00	1.16
% of Variance	40.0	23.2

Table B-3
Group Means and Standard Deviations

1. Group Means

Group	Innovativeness Trait	Product Interest	Communicated Experience	Compatibility
High PI-UI	72.39	19.58	8.61	21.45
High PI-LowUI	73.04	17.71	6.92	19.84
Low PI-HighUI	71.74	16.96	6.74	20.77
Low PI-UI	67.38	14.93	5.66	19.36
Total	70.69	17.23	7.00	20.37

Group	Relative Adv.: Socio-psycho.	Spending on Clothes	Gender	Employment Status
High PI-UI	17.90	2.49	0.81	0.34
High PI-LowUI	17.19	2.34	0.59	0.54
Low PI-HighUI	16.87	1.55	0.68	0.37
Low PI-UI	16.55	1.61	0.38	0.52
Total	17.14	2.00	0.61	0.44

2. Group Standard Deviations

Group	Innovativeness Trait	Product Interest	Communicated Experience	Compatibility
High PI-UI	15.38	4.46	2.77	2.99
High PI-LowUI	11.90	4.82	2.74	3.39
Low PI-HighUI	12.96	4.89	2.15	3.26
Low PI-UI	14.90	4.74	1.92	3.56
Total	14.42	5.05	2.68	3.41

Group	Relative Adv.: Socio-psycho.	Spending on Clothes	Gender	Employment Status
High PI-UI	2.45	1.45	0.39	0.48
High PI-LowUI	2.58	1.34	0.50	0.50
Low PI-HighUI	2.45	0.80	0.47	0.49
Low PI-UI	2.62	0.97	0.49	0.50
Total	2.58	1.25	0.49	0.50

Table B-4
Summary of Stepwise Discriminant Analysis

Step	Action Entered	Variables In	Wilks' Lambda
1	Communicated Experience	1	0.7989****
2	Gender	2	0.7520****
3	Spending on Clothes	3	0.7120****
4	Employment Status	4	0.6985****
5	Compatibility	5	0.6891****
6	Innovativeness Trait	6	0.6810****
7	Relative Adv.: Socio-psycho	7	0.6734****
8	Product Interest	8	0.6691****

**** $p<.0001$

Table B-5
Oneway by Novelty of Purchase

Source	DF	Sum of Squares	Mean Squares	F
		Usage Experience		
Between Groups	4	65.00	16.25	
Within Groups	534	3801.83	7.12	2.28
Total	538	3866.83		
		Post-Adoption Evaluation		
Between Groups	4	288.27	72.07	
Within Groups	534	8579.38	16.07	4.49**
Total	538	8867.65		
		Use Innovative Behavior for the Specific Product		
Between Groups	4	968.68	242.17	
Within Groups	534	36829.22	68.97	3.51**
Total	538	37797.89		

* p<.05
** p<.01
*** p<.001
**** p<.0001

Table B-6
Oneway by Type of Purchase

Source	DF	Sum of Squares	Mean Squares	F
		Usage Experience		
Between Groups	4	591.82	147.95	
Within Groups	534	3275.01	6.13	24.12****
Total	538	3866.83		
		Post-Adoption Evaluation		
Between Groups	4	411.81	102.96	
Within Groups	534	8455.81	15.83	6.50****
Total	538	8867.65		
		Use Innovative Behavior for the Specific Product		
Between Groups	4	2510.86	627.72	
Within Groups	534	35287.03	66.08	9.50****
Total	538	37797.89		

* p<.05
** p<.01
*** p<.001
**** p<.0001

VITA

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